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CONTENTS AND SUBJECT INDEX

Chronic Roentgen-Ray Dermatoses as Seen in the Professional Man. H. N. Cole, M.D., Cleveland.....865

True Cholesteatoma of the Cecum. Charles E. Humiston, M.D., and Eugene C. Piette, M.D., Chicago..874

Value of Cooperation Between Internist and Surgeon in the Management of Complicated Gastric Conditions, with Some Remarks on Partial Gastrectomy. Donald C. Balfour, M.D., Rochester, Minn.....876

Mercurochrome-220 Soluble and Gentian Violet: Bactericidal Efficiency by Intravenous Route. I. C. Brill, M.D., and Harold B. Myers, M.D., Portland, Ore. 879

Clinical Studies on the Kahn Reaction for Syphilis. III. The Test with Spinal Fluids. Harther L. Keim, M.D., Ann Arbor, Mich., and R. L. Kahn, Sc.D., Lansing, Mich.....881

The Mechanism of Toxic Action of Arsphenamin on the Heart. William D. Reid, M.D., Boston.....883

Chicago Pneumonia Commission: Preliminary Report. Herman N. Bundesen, M.D., Chicago.....884

Nonengagement of Vertex in Primiparas at Onset of Labor: Does It Indicate Disproportion or Difficult Labor? William H. Cary, M.D., and John Casagrande, M.D., Brooklyn.888

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

A Case of Rat-Bite Fever. P. W. Monroe, M.D., and Herman Mooser, M.D., City of Mexico.....890

A Diluting Fluid for Platelet Counting. Chauncey D. Leake, Ph.D., and Emmett F. Guy, M.S., Madison, Wis. 890

An Unusual Case of Mercurial Poisoning. Jeannette M. Shefferd, M.D., Fall River, Mass.....891

An Easy Method of Aural Examination. E. W. Simmons, M.D., Portland, Ore. 891

SPECIAL ARTICLE

The Art and Practice of Medical Writing. I. An Acceptable Paper. George H. Simmons, M.D., and Morris Fishbein, M.D., Chicago.....892

EDITORIALS

Vitamin A and Disease.....894

The Interpretation of Edema.....895

Blackstrap, Treacle and Vitamins...896

Essential Hypotension.....896

CURRENT COMMENT

The Rickettsiae.....897

Osteopathy in England.....898

(Subject Index on next page)

ASSOCIATION NEWS 898

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See Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "T," Therapeutics; "MI," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics.

A. M. A., Atlantic City Session, notes.....898
Congress on Medical Education, etc.....898
Abdomen, dental rubber drain for.....ab-922
disease, diagnostic errors.....ab-922
Abortion, criminal 916
Adhesions, treatment and prevention.....ab-927
Amin poisoning in infant.....ab-929
Anemia of puerperium.....ab-922
Anemia, Pernicious, blood sugar in.....ab-932
early stages of.....ab-930
spirochetes in case of.....ab-930
Anesthesia, splanchnic, Kappis method...ab-929
Anthrax involving brain.....ab-927
Anus, continent artificial.....ab-926
Aphasia, sensory ab-932
Archiv für Experimentelle Zellforschung besonders Gewebezichtung 907
Arsphenamin, toxic action on heart.....*883
Association News..... 898
Auricular fibrillation after digitalis.....ab-920
Australia, National Museum of Zoology....909
Blood autotransfusion of.....ab-927
essential hypotension E-896
fibrin, studies on.....ab-919
lactic acid content of.....ab-929
platelet counting *890
sugar; effect of fat on carbohydrate absorption ab-924
transfusion, instruments for.....C-915
Bone marrow, heterotopia.....ab-919
Book Notices..... 917
Books Received.....Adv. page 28
Cancer, natural duration of.....ab-923
nephritis with ab-926
Carbohydrate absorption, effect of fat on..ab-924
Cecum, cholesteatoma of.....*874
Cerebrospinal fluid, bloody, clotting of...ab-930
in young infants.....ab-929
shellac reaction ab-929
spirochete-like structures in.....ab-924
test with Kahn reaction.....*881
Chicago pneumonia commission.....*884
Chickenpox and herpes zoster.....909
Children in institutions.....ab-932
Cholecystectomy for hyperacidity.....ab-922
Cholesteatoma, true, of cecum.....*874
Cholesterol, action on blood and weight...ab-929
intermediary decomposition of.....ab-928
Claudication, intermittent ab-928
Colds, war experiences.....ab-931
Colitis, chronic ulcerative.....ab-923
Colloid state and viscosity.....ab-929
Copper poisoning causes hemochromatosis..ab-919
Correspondence 914
Deaths 913
Dermatitis, exfoliative ab-926
from freezing, roentgenotherapy of.....ab-930
Dermoid cyst of mouth.....ab-921
Digitalis by rectum.....ab-929
auricular fibrillation after.....ab-920
influence on contraction.....ab-920
Diphtheria, surgery in.....ab-928
Drain, dental rubber.....ab-922
Ear examinations, ophthalmoscope for.....*891
Eclampsia late in puerperium.....ab-927
Eczema, occupational, pathogenesis of....ab-926
sodium bromid intravenously in.....ab-927
Edema, interpretation of.....E-895
Embolism, pulmonary, from pelvic disease..ab-923
Emphysema, Freund's operation for.....ab-928
Encephalitis, spontaneous, in rabbits.....ab-929
epidemic, Winnipeg outbreak.....ab-924
Endocarditis, gonococcal, recurring.....ab-927
Endothelioma of peritoneum, primary.....ab-922
Epilepsy, fasting treatment of.....ab-932
Epinephrin reaction ab-929
test ab-930
Erythrocytes, sedimentation speed.....ab-925
Erythrodermia ab-926
Esophagus, diverticulum of.....ab-928
Exostoses, hereditary factor in.....ab-932
Fat splitting in infants.....ab-926
Fetus, gas metabolism in, regulation of...ab-928
possible injury from abortive attempt.....916
Fevers, infectious and protein.....ab-925
Fistula, vesicovaginal, operation for.....ab-922
Foreign Letters 908
Gangrene, angioneurotic ab-928
Gentian violet, intravenously.....*879
Glaucoma and general medicine.....ab-928
Goiter, adolescent ab-924
exophthalmic, mortality ab-924
exophthalmic, treatment of.....ab-932
prophylaxis of ab-926
roentgen examination of.....ab-928
Granuloma inguinale ab-923
Gynecology ab-928
Harrison Narcotic Law, conflict of laws (Tenn.) MI-918
entrapment of physician (Tenn.).....MI-918
prescribing for addicts (Tenn.).....MI-918
Havana medical institutions.....910
Hearing, range of.....ab-930
Heart block, exaggerated by neo-arsphenamin ab-925
contraction, effect of digitalis on.....ab-920
toxic action of arsphenamin on.....*883
Hebrew University opens, in Jerusalem.....907
Heffter, Arthur, death of.....912
Hemochromatosis from copper poisoning..ab-919
Hemolysis, mechanism by complement action ab-923
Herpes simplex virus in zoster.....ab-929
virus infection, pathways.....ab-919
zoster in relation to chickenpox.....909
Hirschberg, J., death of.....912
Hirsutism and suprarenal cortex.....ab-925
Hospitals, annual congress on.....898
Hypnosis and stomach function.....ab-930
Infants, new-born, stomach lavage in....ab-930
Infectious diseases, mortality.....ab-929
Insulin hypoglycemia and spasms.....ab-928
Internal medicine, 25 years' progress.....ab-899
Intestines; ileus serum.....ab-930
Jaundice, spirochetal ab-931
Journalism, medical *892
Kahn reaction with spinal fluids.....*881
Kidney, acute localized infection.....ab-922
disease, blood creatinin in.....ab-927
syphilis, unusual form.....ab-925
Labor, nonengagement of vertex in primiparas *888
Leishmania cultivated on leptospira medium ab-920
Leprosy, iodized ethyl preparation in.....ab-921
certification of cure.....907
Leukemia, acute myeloid.....ab-924
Leukopenia in sepsis.....ab-930
Licensure, annual congress on.....898
Mackenzie's scientific "last will and testimony" 908
Malaria, cerebrospinal fluid in.....ab-929
Mammary gland tuberculosis.....ab-922
Marriages 912
Medical Education, annual congress on.....898
Medical Education, Registration.....916
Medical writing, art and practice of.....*892
Medicolegal 918
Meetings, Coming Meetings..... 918
Meningitis, diagnosis ab-923
Mercurial poisoning, unusual case.....*891
Mercurochrome intravenously *879
Metabolism, gas, regulation in fetus.....ab-928
Migraine in children.....ab-926
Mitochondria degeneration ab-932
Molasses, blackstrap, and vitamins.....E-896
Mouth, dermoid cyst of.....ab-921
Muscles; voluntary movements.....ab-930
Neo-arsphenamin exaggerates heart block..ab-925
Nephritis with cancer.....ab-926
use of milk in.....916
Nervous system, vegetative.....ab-930
New and Nonofficial Remedies..... 893
News 903
Obstetrics and gynecology, progress.....ab-901
Ophthalmia, secondary ab-931
Osteopathy in England.....E-898
Oxydase reaction in leukemia.....ab-924
Paralysis, general, malaria treatment..911, ab-932
Para-smallpox ab-924
Pathology, American teaching of.....ab-899
Pelvis, infection, treatment of.....ab-921
Peritoneum, primary endothelioma of....ab-922
Peritonitis, Douglas abscess after.....ab-922
Phagocytes, rôle in organism.....ab-926
Pharmacology, 25 years' progress.....ab-898
Pharynx, malignant tumors, treatment...ab-921
Physiology, 25 years' progress.....ab-898
Plethora, hydremic E-895
Pneumonia commission, Chicago, report....*884
blood reaction and gases in.....ab-920
Pox, mammalian and avian.....ab-930
Propaganda for Reform..... 914
Prostatectomy, uremia after.....ab-932
Protein shock from albumin water in infant ab-925
Psoriasis, sodium salicylate intravenously in ab-923
Psychoses, endogenous ab-928
Puericulture, chair of, at Paris Faculté de Médecine 910
Puerperal fever ab-928
Puerperium, anemia of.....ab-922
Queries and Minor Notes..... 915
Rat-bite fever, case of.....*890
Rheumatic fever, infection of.....ab-921
Rickettsiae E-897
Roentgen-ray dermatoses, chronic in.....*865
Sarcoma, chicken, infectious.....ab-927
of pharynx, treatment ab-921
statistics on 102 cases.....ab-929
traumatic ab-930
Sclerosis, spirochetes in ventricular fluid in ab-924
Scorpion pest ab-926
Serum sickness, a manifestation of latent gout? ab-926
Sinusitis, general disorders from.....ab-921
Smallpox epidemic in Madrid.....911
Society Proceedings, 898, 904, 905, 907, 908, 918
Specialties, 25 years' progress.....ab-899
Staining, vital, of sediments.....ab-928
State Board Examinations..... 916
Stomach, acidity, cholecystectomy for.....ab-922
function and hypnosis ab-930
motility, physiology of ab-929
surgery, intern-surgeon cooperation in *876, 908
surgery, metabolism after.....ab-930
tube, "invention" and employment.....C-914
Sulphemoglobinemia ab-931
Suprarenal cortex as factor in hirsutism..ab-925
tumor, virilism with.....ab-924
Surgeon-intern cooperation in gastric conditions *876, 908
Surgery and surgical specialties.....ab-900
Tachypnea ab-920
Temperature, normal, of human body....ab-925
due to obstruction ab-920
Tendons, multiple xanthoma of.....ab-922
Thyroid, Riedel's struma.....ab-919
Tonics and Sedatives.....Adv. page 22
Trematodes, Brazilian, cataloguing.....ab-927
Trichophytin and tuberculin.....ab-931
Tubercle bacilli, serologic classification of..ab-924
Tuberculin tests, diagnostic.....ab-931
Tuberculosis, reinfection in rabbits.....ab-925
sanocrysin ab-928
vaccination against ab-930
Tuberculosis, Pulmonary, blood-borne..ab-929
artificial pneumothorax for.....ab-925
fever in ab-925
Typhoid, immunity and vaccination.....916
Ultraviolet rays for tuberculous glands..ab-932
history 915
window for absorption of.....915
Uncinariasis infestation ab-920
treatment ab-920
Uremia after prostatectomy ab-932
Urine, specific gravity of.....ab-920
Urticaria pigmentosa ab-923
Uterus, cancer, radium treatment of.....ab-921
Vasoconstrictor substances in blood....ab-928
Varicocele, pelvic, treatment of.....ab-922
Vegetable extracts, insulin-like action of..ab-930
Viruses; intramuscular inclusions.....ab-919
filtrable, photography of.....ab-929
ultraviruses, new science of.....ab-931
Vitamin A and disease.....E-894
vitamins, blackstrap and treacle.....E-896
Vulva, cellular fibroma of.....ab-922
Wassermann Reaction, provocative.....ab-931
Water metabolism ab-930
Wound, defined (La.).....MI-918
Xanthoma of tendons.....ab-922
Xerophthalmia and vitamin A.....E-894

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CHRONIC ROENTGEN-RAY DERMATOSES AS SEEN IN THE PROFESSIONAL MAN *

H. N. COLE, M.D.

CLEVELAND

In 1896, Marcuse [1] first called attention to the dangers incident to exposure to the roentgen ray—the production of an alopecia and of a dermatitis "resembling sunburn." In the short space of twenty-eight years, how much valuable knowledge has been discovered concerning this wonderful physical agent? Incidentally, how many workers have learned to their own cost the dangers ensuing from being fully exposed to its unseen rays? In the early days, many a martyr to science was known, and the result was a long list of fatalities extending from 1898 to 1912. As the result of education and prophylactic measures, this list has since rapidly declined. Nevertheless, in the last few years, with the increasingly wide use of the roentgen ray by many physicians and dentists for picture work, for fluoroscopic work and for treatment, the question arises whether it will not be well to sound a new warning on this important subject. This applies also to the general use of radium. And this question is put not so much for the specialist who is already forewarned and prepared, as for the general physician and surgeon with his fluoroscope, and the dentist with his film work. All too often, these men are working with little or no prophylactic protection; what the result will be, only the next generation can say.

SYMPTOMS

Chronic roentgen-ray dermatoses are those characteristic skin changes seen especially on the uncovered parts of workers exposed to a greater or lesser degree, and without protection, to the action of the roentgen rays. The subjective symptoms in the beginning are nil. Later, as the process advances, the patient complains of dry hands, which have lost their sense of touch and temperature. Their gripping power is weakened. In advanced cases, the patients suffer greatly from pain, especially at night, and of such degree as to prevent sleep. This pain is explained as probably due to involvement of the nerves in contracted scars and ulcers. Perhaps, also, nerves are stretched through being caught in contracting tissues.

Objectively, the picture is clear and should never be difficult to diagnose. The skin has a harsh, dry feel, and scattered over its surface are brownish, macular areas of pigmentation. Telangiectases are also to be seen to a greater or less degree. In places the skin may appear lardaceous, shiny, hard, thickened and bound down, as it were, to the bones, and stretched as if it were too small to cover the parts affected. This condition is seen most often on the hands, as they are most exposed to the deleterious action of the rays. The nails are friable, with broken off ends, and longitudinal fissures over their surfaces. In addition, there is a piling up of the nail tissues under the friable, free distal ends. The skin around the nails is also affected with a piling up of epidermis and the formation of hangnails. In fact, the presence of hangnails and of dry skin on the hands is usually the first precursor of a chronic radiodermatitis.

If the process is more advanced, one notes the presence of keratoses scattered over the surfaces, and cracks in the surfaces appear especially over the dorsum of the knuckles and finger joints. Some of these may even break down, and one may note ulcerations, indolent in type. Perhaps some of these have healed over, and then there are keratoses, cracks, scales, ulcers and healed scars scattered here and there over the dorsum of the hands and even of the face. Some of these ulcers may refuse to heal, and some of the keratoses may increase in size, degenerate and become malignant, showing the clinical characteristics of epitheliomas. As a rule, however, these become manifest later, and all the writers warn us that generally it is impossible to make an early diagnosis of malignant change except through the use of the microscope. In advanced cases one may find ten, fifteen, twenty or more areas of malignant change on the hands of a single patient. If we wait for gross changes, it may be too late.

The skin and subcutaneous tissues are not alone affected. A chronic roentgen-ray neuritis has been described, the symptoms of which have been mentioned above. Moreover, in advanced cases, the bones, especially of the fingers, show definite changes with actual absorption of osseous tissue, either in sharply defined areas or even causing the disappearance in whole or in part, of a phalanx.

A condition often seen is spoken of as the roentgen-ray hand. It is the left hand of an old operator, showing a stiff, flail-like, dried out organ, with the skin manifestations described, and often with the second or third finger or both already removed because of malignant change. The second finger is the one most often affected, as in the old operators, using the fluoroscope, this finger was in closest contact when the hand was placed under the tube and before the screen to

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* Annual address, read before the Section on Dermatology of the Southern Medical Association, New Orleans, Nov. 24, 1924.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of several illustrations. The complete article appears in the author's reprints.

* From the Department of Dermatology and Syphilology of the Cleveland City Hospital, of the Lakeside Hospital and of Western Reserve University School of Medicine.

1. Marcuse, W.: Deutsch. med. Wchnschr. **30**: 481-482, 1896.

gage distance and demonstrate the bones. As said before, these changes may be found on other parts of the body that have been constantly exposed, as the face, the ears and a V-shaped area on the neck. Even the mucous membranes may show changes, as will be described later. Curiously enough, even a protective sleeve is sufficient to ward off some of the deleterious action, so that as a rule one finds no manifestations above the sleeve on the arm.

LITERATURE OF THE DISEASE

Oudin [2] described the first case in a physician in 1897, and as early as 1900 Kienböck [3] gave a careful description of the changes incident to the roentgen-ray burn and described methods of preventing these reactions on parts of the body near that exposed; e. g., by the use of lead. However, much damage had already been done, and it required time for a knowledge of the essentials of protection to become world known. Thus, by 1906, Lindenborn [2] reported twenty-nine cases of roentgen-ray tumors, and Kassabian,[2] by 1907, reported seven deaths from roentgen-ray cancers. It was in this year that Porter and White [4] of Boston made their memorable report. They were able to collect reports of ten cases from the literature of roentgen-ray cancer in the physician, six of them fatal; they also reported two cases of their own. One was that of a man who started work in March, 1896, and by October began to show symptoms of chronic roentgen-ray change. This patient had ten different epitheliomas in the space of five years. In their second case, Dr. Wright found a spindle cell sarcoma which had originated from an old roentgen-ray ulcer of the ring finger.

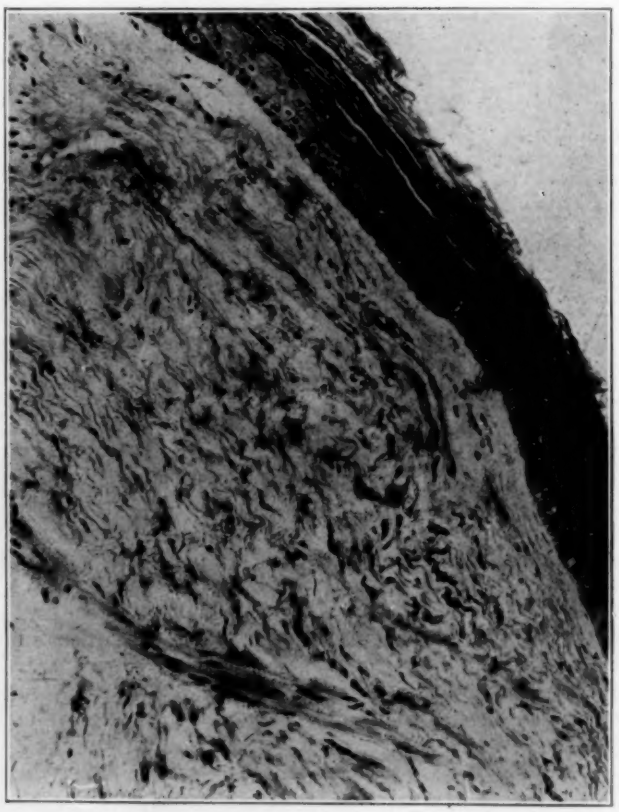

Fig. 2 (Case 1).—Specimen under low power: low epidermis, with absence of nuclei and vacuolization; enlarged capillary (telangiectasia) in thickened corium; no glandular elements.

In 1909, Rowntree [5] reported eleven cases of roentgen-ray carcinoma in England, and said that in America there were no less than twenty; of these, one English and seven American cases had been fatal. In passing, he notes the following characteristics of these cases: They were in young men; metastases were late, and in no less than five of the eleven English cases the lesions were multiple. In the same year, Rawlings [6] at St. Bartholomew's reported another case with multiple malignant changes, and Evans [7] presented the hand and lower half of the forearm of one of the earliest roentgen-ray practitioners, malignant changes having necessitated amputation.

Again, in 1909, Porter and Wolbach [8] reported and compiled reports of forty-seven cases of severe roentgen-ray lesions. They, along with Rowntree, have probably had the opportunity of studying more chronic roentgen-ray dermatoses than any other men living. Thirty-six of these were undoubtedly epidermoid cancers, and two were questionable sarcomas. Of the thirty-six patients with cancer, nine had died. Porter refers to the cases as a group of definite occupation dermatoses which can be diagnosed at a glance by the dry skin, without hair, the telangiectases, the ribbed nails, and the keratoses on the backs of the hands of young men. In older patients there are the paronychia, more numerous keratoses, rhagades and ulcerations healing and breaking down, until finally there comes the developed epithelioma. Porter says he has yet to see a roentgen-ray lesion on the palmar surface of the hands and fingers of a roentgen-ray worker. The dorsal base of the left middle finger is most universally affected.

In 1911, Gougerot [9] presented a severe case of chronic radiodermatitis and neuritis still present ten years after work was stopped. He thought the neuritis caused the atrophy shown, and Scott [10] reported the fatal outcome in an old roentgen-ray worker. This man had had multiple removals of phalanges, with final axillary involvement and death. It was in the same year that Hesse [11] made his much quoted compilation of the literature to that date. He was able to collect records of ninety-four cases of chronic roentgen-ray dermatoses with malignant change, fifty-four of which occurred in physicians or technicians. There were thirteen in Germany, thirteen in England, two in France and twenty-six in America. In this list, sarcoma had been diagnosed once; either sarcoma or carcinoma, three times, and carcinoma in the remainder. The time elapsing from the first use of the roentgen ray to the malignancy was from four to fourteen years, with a median in thirty-seven cases of nine years. The time from the first dermatosis to the first malignancy varied from one to eleven years, being four and one-half years

2. Cited by Ledoux-Lebard, R.: Paris méd. **12**: 299-303 (April 8) 1922.
3. Kienböck, Robert: Wien. klin. Wchnschr. **13**: 1153-1165 (Dec. 13) 1900.
4. Porter, C. A., and White, C. J.: Ann. Surg. **46**: 649-671 (Nov.) 1907.
5. Rowntree, C. W.: Brit. M. J. **2**: 863 (Sept. 25) 1909: Lancet **1**: 821 (March 20) 1909.
6. Rawlings, L. B.: St. Bartholomew's Hosp. Rep. **14**: 171-191, 1909-1910.
7. Evans, J. H. Proc. Roy. Soc. Med., 1909-1910, Clinical Section, p. 145.
8. Porter, C. A., and Wolbach, S. B.: J. M. Res. **21**: 357, 1909.
9. Gougerot, M. H.: Bull. et mém. Soc. française de dermat. et de syph. **22**: 105, 1911.
10. Scott, S. G.: Fortschr. a. d. Geb. d. Röntgenstrahlen **17**: 168-169, 1911.
11. Hesse: Fortschr. a. d. Geb. d. Röntgenstrahlen **7**: 82-92, 1911.

in twenty cases. In the physicians, the parts affected were, first, the hands, and, second, the face. Hesse mentions the protecting sleeve. Among the physicians, the left hand was affected twenty-five times and the right five times. The index and middle fingers were most affected. Among the technicians, other parts of the body were affected as well. The carcinomas were often multiple; in one physician there were twenty of them. Hesse found that metastases were slow. Of the fifty-four, only fourteen had metastases. Of his fifty-four patients, eleven had died. No doubt, many have since passed away.

In 1913, Beddes [12] reported still another professional patient with malignant change. In 1914, Bichler [13] quoted P. Krause as saying that "the knowledge of the symptomatology, pathology and therapy of roentgen-ray carcinoma had been so added to by Hesse and others that within ten years it would be numbered among the disappearing diseases." Bichler reported the death of a roentgen-ray helper in a plant; a case of carcinoma in a roentgen-ray helper with resultant removal of a finger, and a case of carcinoma of the ends of two fingers in a roentgen-ray specialist. He gave it as his opinion that there were at least 100 cases of professional roentgen-ray carcinomas. From his time until 1919, no further reports are found in the literature. In this year Depenthal [14] reports a double mammary cancer in a nurse who had worked in a roentgen-ray room for eighteen years.

Rowntree,[15] writing again in 1922, says he can now report three further deaths in England among roentgen-ray workers. He thought that this small number spoke well for better protective measures. He says that practically every patient suffering from roentgen-ray dermatitis in the years 1899 to 1906 has developed cancers in a more or less severe form. He thinks that no case of confirmed chronic roentgen-ray dermatitis can be considered safe until many years after the last exposure. However, he says that he knows of two men in London who in the early days were constantly exposed for a year or more and badly burned. They then gave it up and for nearly twenty years have remained practically free. Rowntree thinks that only after microscopic examination can we make an early diagnosis of malignancy in a suspected area. In most of the cases that he investigated, the time between the first exposure and the first epithelioma was at least four or five years and from then on, in two no less than seventeen years. In the same year, Ledoux-Lebard [2] estimated that the mortality in roentgen-ray workers had certainly passed 100 cases; and the following year Dibble and Morison [16] reported another case, under observation for five years, in which twenty-seven minor operations had been performed on the fingers to limit the disease.

It is unfortunate that we can make no accurate estimate up to date of the number of chronic roentgen-ray dermatoses in physicians and technicians, with their sequelae. Outside of my own practice, I know of one chronic roentgen-ray dermatosis of the hands, not malignant as yet, and that of a physicist which became malignant, and after several operations ended in his death. I also know of a very severe chronic radium dermatitis in a physicist. I am convinced that if the total figure of chronic roentgen-ray and radium dermatoses in medical men and technicians could be ascertained, it would far exceed any figures ever reported. As physicians, if we are to get any true estimate of the increase or decrease of these dermatoses, it is our duty to report each case coming to our attention. I here report a series of such dermatoses, which have been seen in seven medical men, one technician and one orderly. Several of these cases are mild, it is true, and two of them resulted not from exposure while working with the roentgen ray, but from the results of roentgen-ray treatment—not my own, however. Nevertheless, to make the report and study more complete, they are mentioned along with the histologic reports of one other case illustrating the points I have mentioned and the progression of roentgen-ray damage to the skin.

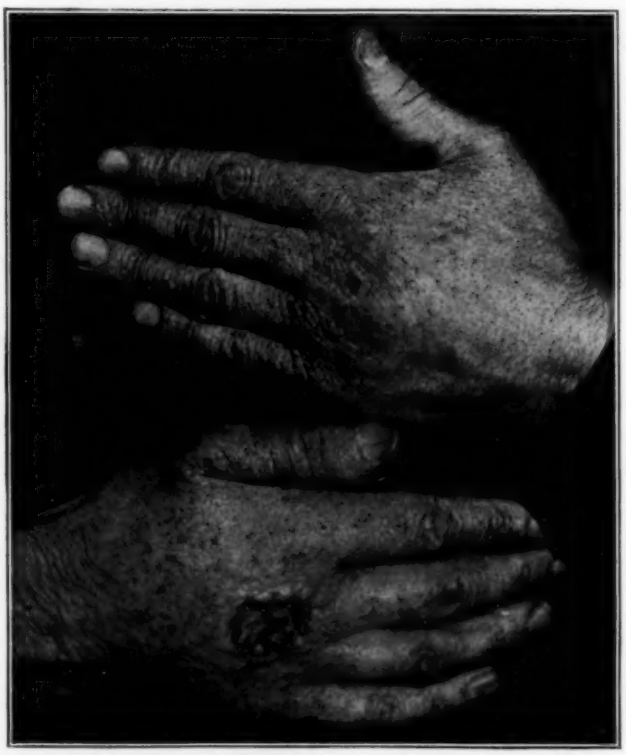

Fig. 4 (Case 2).—Appearance of hands.

REPORT OF CASES

CASE 1.—A young man, with a palm sized area of radiodermatitis on the back, had been given eight or ten roentgen-ray treatments by a Columbus physician, about two years before, for an eruption on the back. The patient remembered that after at least one of these treatments, the skin became quite red. About one year before I saw him, he first noticed the present change in the skin. Examination showed an irregular area over the back where the skin was whiter than usual, rather lardaceous in appearance, quite indurated, and bound down to the subcutaneous tissues. Sprinkled over the surface of the area were numerous telangiectases and a few pigmented spots. An indurated area showing telangiectasia was excised and stained with hematoxylin and eosin. Microscopic examination showed a low epidermis consisting of seven or eight cells, with an intact basement membrane. There was some little vacuolation of the epidermal layer. The corium just below the flattened epidermis stained poorly. Practically no papillae were noted, and the entire corium was

12. Beddes, T. P.: Proc. Roy. Soc. Med., Derm. Sec. **7**: 50-52, 1913-1914.
13. Bichler, H.: Wien. klin. Wchnschr. **26**: 934-937, 1914.
14. Depenthal: München. med. Wchnschr. **13**: 354, 1919.
15. Rowntree, C. W.: Brit. M. J. **2**: 1111-1112 (Dec. 9) 1922.
16. Dibble, J. H., and Morison, G. M. W.: Arch. Radiol. & Electrotherap. **28**: 65 (Aug.) 1923.

much thickened. About half way down through the corium was a very large arrector pilorum, while just to one side of this were several small vessels showing swollen, much thickened, endothelial cells. There was an edema of the entire corium and an absence of sebaceous glands. The absence of cellular infiltrate in the corium was noted, though around a few of the vessels were scattered mononuclear elements. At one place, deep in the corium, a few degenerated remnants of sweat glands showing a slight infiltration of fibroblasts and mononuclear cells around them were noted. Many of the cells of the coil glands were detached from their basement membrane and vacuolated. Hairs were entirely absent.

Another specimen was recorded from an area somewhat more thickened and lardaceous and showing more telangiectasia.

Microscopically, the epidermis was quite low, probably six or eight prickle cells thick, and showed above this a stratum corneum of about the same thickness. A few cells of the stratum granulosum still showed, while in the prickle cell layer the nuclei were contracted and many of them gone. The prickles were quite difficult to distinguish. The basal cell layer was perfectly intact. There was an entire absence of papillae, while the corium was very much thickened and showed an entire absence of sweat and sebaceous glands. The corium had little or no cellular infiltrate; it stained poorly and showed some new fibroblasts. Just beneath the epidermis there was a large capillary, larger at one end, its endothelial cells rather swollen. Deeper in the corium, there was an arrector pilorum showing an increase in size with contracted, degenerated cell nuclei, when they were at all present. Many of its nuclei were partially gone and were edematous and vacuolated. The deeper vessels had a great thickening of their walls, though not sclerosed.

Summary: Early, low grade radiodermatitis, with telangiectasia formation. Tissues whitened and hardened. Microscopic picture: low epidermis, no epidermal pegs. Corium thickened, staining poorly and showing absence of *all* glandular elements; thickened vacuolated arrector pilorum and enlarged capillaries (telangiectases) just under the epidermis. Deep vessels; thickened walls but not sclerosed.

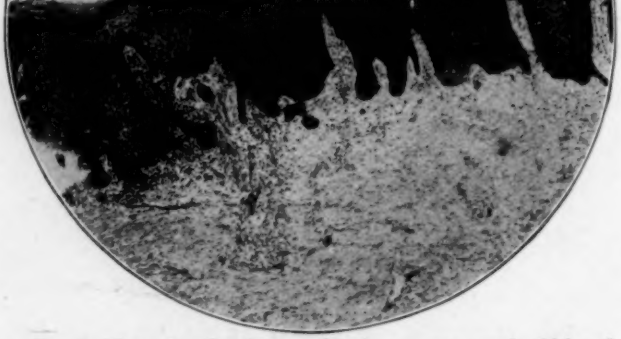

Fig. 5. (Case 2).—Specimen under low power; much thickened epidermis dipping down into the corium at base of one epidermal peg; extensive cellular infiltration.

CASE 2.—The patient was troubled with a trade dermatitis of the hands, which was treated with the roentgen ray at a Cleveland hospital two years before. He had three or four treatments, each one-half skin unit at two-week intervals. The process cleared up for a time, then recurred, and he had two more treatments. It responded at once, and as the effect was good, an orderly in the roentgen-ray room, in the temporary absence of the physician in charge, gave him another treatment. He explained to the patient that he knew the dose used and that if the previous dose was enough to clear it up temporarily, certainly a larger dose would cure it permanently. Seven days later, the skin became quite red, tender and swollen. It was several months before the reaction subsided entirely, though it never went on to ulceration. After that time, the hands never returned to normal, the skin was quite dry, there was some scaling, and later the backs of the hands began to show warts and much thickening of the skin. Examination showed a diffuse process over the backs of both hands, more extensive over the right hand.

There was extensive radiodermatitis; the process was indurated and lardaceous. Many of the nodules had a suspicious, pearly appearance. A biopsy was taken from the edge of the broken down fissure.

Over the back of the left hand, there was a diffuse process at the base of the fingers, of no definite outline, reddish, showing pigmented spots and telangiectases, many papular excrescences, and secondary fissures, crusts and scales. These were all seated in a skin that was indurated and partially bound down to the underlying tissues. The dorsum of the right hand showed a diffuse, lardaceous infiltration, extending from the base of the digits back to the level of the insertion of the thumb and wrist. The skin was quite firm and absolutely immovable on the underlying tissues, while scattered over its surface were many keratoses, telangiectases, brownish pigment spots and numerous pearly or lardaceous, slightly raised tubercles. A large section was removed for study from the edge of a fissured area. Mallory's phosphotungstic acid connective tissue stain and Wright's elastic tissue stains, in addition to hematoxylin and eosin, were used.

Microscopically, the epidermis was very much thickened, showing a deep stratum corneum, a well marked stratum granulosum and long epidermal pegs of prickle cells extending deeply into the corium. The lower prickle cells had a tendency to take the basic stains. The basal layer of the epidermis was quite sharply marked at most places, but in several spots there was a localized cellular infiltration of the upper corium which extended up into the lower layers of the prickle cells. In such places some edema was noted, the basement layer was no longer perfectly intact, and there were epidermal strands and cells dipping down into the corium. At such places, numerous mitoses were noted in the prickle cells. The cellular infiltration was made up of eosinophils, small mononuclear plasma cells and polymorphonuclears.

The corium was immensely thickened and showed an entire absence of glands, hairs and arrectores pilorum. Many small capillaries were noted just under the epidermis, while deeper in the structure of the corium, vessels with much thickened walls were seen, many of them completely blocked off. Their media was much thickened, and there were either broken up elastic fibers or none, and a laying down of much hyaline material. Several vessels were entirely sclerosed and replaced by connective tissue, fibroblasts and a mononuclear cellular infiltration. With the foregoing stains, the corium was found to be replaced mostly by a hyaline, collagenous connective tissue, which was very thick. Many elastic tissue fibers were noted. At one place, a definite epithelial pearl was found well down in the corium.

Summary: Advanced chronic radiodermatitis on backs of hands. Dorsum of right hand showing extensive lardaceous, deeply infiltrated skin, which is immovable. Microscopically, a very thick epidermal layer showing a proliferation in the form of deep pegs dipping down into the corium. At several places, a cellular infiltration around the base of these pegs, and the basement membrane not entirely intact. Epithelial pearls. Corium very thick, replaced by a hyaline, collagenous, connective tissue, and showing many vessels partially or entirely sclerosed. No glandular elements.

CASE 3.—A physician operated a fluoroscope from 1904 to 1906, and again from 1913 to 1917. He said that as a rule he wore gloves, but that many times he did not. He did not particularly note any trouble with his hands until in September or October, 1917, when he had a patient on the table for

about one and one-half hours. Shortly after this, his hands became rather reddened and swollen, and it is from that time that he really dated his trouble. The symptom became quite noticeable in 1921, and he called on me in January, 1923. Examination showed very dry hands, especially the left. Numerous cracks were noted. The nails were very dry, longitudinally fissured, and broken off at their ends, while there was a piling of the nail substance at the free border; numerous hangnails were present. The skin over the dorsum of the fingers on the left hand was atrophic, hard and bound down to the bones, and there were transverse cracks over the knuckles, and large thickened keratoses on the first joints of the middle three fingers and on the second joint of the third. The patient was ordered to stop all fluoroscopic work and all surgery, and was treated with the electric cautery and radium. My usual dose to a lesion was: radium, 50 mg.; brass, 1 mm.; silver, 1 mm., and gauze, 1 cm., for three hours. As a result of this treatment, most of the keratoses have cleared up nicely; the skin is no longer so indurated, and the patient is quite comfortable, provided he keeps the skin protected from irritation and uses an emollient, such as hydrous wool fat. He has always refused microscopic examination.

Summary: Severe radio dermatitis of left hand due to use of fluoroscope from 1904 to 1906 and from 1913 to 1917. Severe reaction in 1917 following one and one-half hour examination of a patient. First bad symptoms in 1921. Numerous keratoses, indurated areas and cracks, which have responded well to electrocautery and radium in heavy screened doses.

CASE 4.—A physician operated one of the old static machine fluoroscopes about two years, beginning in 1900. At the end of the first six months, he noted a slight erythema and swelling of the left hand. Gradually the skin became dry, and the nails brittle and friable, with a separation of the nail from its bed at the distal end. He gave up the work because of the condition of his hands. The skin condition became worse, especially on the left hand. In 1915, an ulcer appeared at the first joint on the dorsum of the middle finger. This kept getting worse, and it was the custom of the patient to protect it with adhesive plaster, which he wore for five years. He consulted me in 1920. The condition was much like that in Case 3, except that there was an indolent fissured ulcer over the area noted, about the size of a dime. The tissues around it were much thickened, and were bound down to the bones. The edges showed a tendency to a pearly, rolled over appearance. I made a clinical diagnosis of malignant degeneration. The patient went to Dr. C. A. Hamann, who removed the entire finger. I did not get an opportunity to study the tissue, but the pathologist at the hospital where the patient went reported an epitheliomatous degeneration. The wound healed up nicely, and the patient is able to carry on his work, provided he protects his hands from irritating solutions, etc. He still shows the nail condition, the atrophic skin and some keratoses.

Summary: Patient operated a static machine from 1900 to 1902; erythema six months after beginning use of roentgen ray. Chronic, progressive radiodermatitis of the left hand, culminating in a five year ulcer on the dorsum of the left middle finger. Finger removed. Diagnosis, epitheliomatous degeneration.

CASE 5.—The patient started the use of the roentgen ray with an old static machine about 1897 or 1898, and used it for fluoroscopic and plate work twelve or fifteen years. He did not remember having had a real burn, but for ten or twelve years his hands troubled him. This was especially true when he put them in irritating solutions while at surgical work. When seen in January, 1923, both hands showed a diffuse dryness and scaliness, while the nails were much fissured, broken off at their free borders, and surrounded by hangnails. The skin of the left hand especially was very atrophic and hard. At the base of the dorsum on the left wrist there was a raised, dime-sized keratotic area showing suggestive rolled over, pearly edges, which I advised having excised at once. The patient refused, so I treated the lesion with 2½ skin units of unscreened roentgen ray, well screened off with lead. It disappeared and has given no more trouble. There were some smaller keratoses over the first joints of all four fingers on the same hand; these were treated by means of radium, with the same dose as in Case 3. The patient went to Florida for the rest of the winter and returned with his hands in fairly good condition, and did not return to me until March, 1924. At this time, there were once more numerous keratoses over the knuckles of the left hand, and several over the last joint of the ring and middle fingers. The entire skin was quite atrophic, bound down and hard. Radium was once more applied, the same dosage being used. Two of the areas refused to heal, however, after use of the quartz lamp and local applications. Surgical measures, or at least tissue examinations, which were advised, were refused. Undoubtedly the patient has several malignant degenerations.

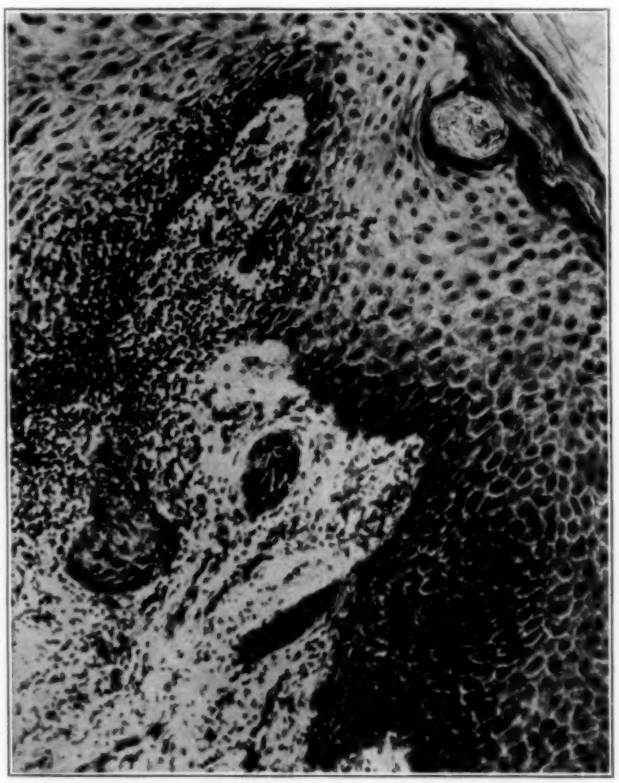

Fig. 6 (Case 2).—Same specimen as in Figure 5 under high power: beginning invasion of epidermis into corium; basal layer no longer entirely intact; extensive edema and cellular infiltration.

Summary: Operation of a static machine from 1897 to 1915. No erythema. Progressing change of skin of hands. One definite clinical epithelioma in back of left hand cured and has remained well two years after one dose of unscreened roentgen ray. Only moderate response of numerous other keratoses on hands to radium therapy. Clinical diagnosis, multiple epitheliomatous degenerations on top of old radiodermatitis.

CASE 6.—A physician began using the roentgen-ray static machine in 1897, and continued for six or seven years. He used it a great deal along with his practice, and said that at one time his hand looked more or less sunburned for a year or more. He first noted some fissures alongside the nails, then had pain in his finger tips, and stopped the work after six or seven years. Examination showed a right hand with a rather dry skin and some rhagades around the nails. The entire left hand from the base to the tip of the fingers showed an extreme dryness of the skin, with some atrophy and telangiectasia. Over the knuckles there were some keratotic thickenings, and on the second finger at the second phalanx some crusting. The process was exaggerated toward the

finger tips, and the skin around the nails was fissured and piled up.

Summary: Operation of static machine from 1897 for six or seven years. At one time, left hand showed diffuse redness for a year. Stopped all roentgen-ray work. Illustrates how a patient can recover with only moderate keratoses and skin changes, even after a severe burn, provided he stops the work.

CASE 7.—A roentgen-ray salesman and technician had sold roentgen-ray machines and worked around them since 1912, and first noted symptoms in 1919. During the entire war, he was employed by the U. S. government as a roentgen-ray technician. He worked eight hours a day in a roentgen-ray room, without any protection, teaching army officers to do photography. Since then his condition had been much worse. When seen in 1923, his entire hands, over their dorsal surfaces and up to the sleeves, were covered with numerous keratoses, many of them crusted over. The skin in areas was dense, contracted and bound down. The nails were fissured and friable, while numerous rhagades were present. I gave my advise to the patient, but he went ahead and treated himself with electrocoagulation. During the last year, he treated himself several times, and at a recent visit a photograph taken showed marked improvement. One keratotic area is still present on the dorsum of the left middle finger, but on the whole the patient is much improved. A biopsy was advised because of the long duration of this keratotic patch, but was refused.

Summary: Roentgen-ray technician with very severe keratotic reaction over back of both hands. Excellent improvement through use of electrocoagulation by patient himself.

CASE 8.—The patient first began work with the roentgen ray in 1897, and continued to 1907. His work was both fluoroscopic and plate work. It was in 1904 that he first noted some puffiness and roughness of the hands. He did not remember having had any acute reaction. Warts began to show over the left hand first in 1910, while the right hand was free until 1916. At one time he was troubled with growths on the right breast and was advised to have it removed surgically. He also had a few keratoses on the nose. In 1920 the process over the dorsum of the left middle finger became so bad that I advised its surgical removal, which was done by Dr. F. E. Bunts, and epitheliomatous degeneration was found. The patient was troubled greatly with severe pains, which were so terrific as to prevent all sleep at times.

Fig. 8 (Case 2).—Same specimen as in Figure 7 under high power: muscular fibers entirely replaced by connective tissue; marked infiltration.

I saw the patient first in 1917, when the backs of both hands up to the sleeve area showed almost a diffuse atrophic condition of the skin, while covering the knuckles and joints were many keratoses and ulcerations. The nails were badly affected, and there were extensive rhagades. In many places, the skin of the fingers was entirely bound down to the bones; it was quite shiny and sclerotic. In the beginning, I treated the areas with a 10 mg. radium plaque, using only a little or no filter and short exposures for ten or fifteen minutes. The patient was improved very much on the whole, with the exception of one finger, which it was found necessary to have removed surgically. In 1922, I began the use of radium therapy, using it in heavily screened doses as in Case 3. Some of the keratoses were helped, others not. For the last three months I have been giving weekly quartz lamp treatments to the hands with much benefit. The skin is much softer, many cracks have healed over, and the terrific night pains are practically gone. The patient still has many long-standing, deep-seated keratotic spots for which I have advised a microscopic examination, but without avail.

CASE 9.—The patient began work in 1898 or 1899 with a static machine. He was much interested in locating brain tumors, and used to take pictures of kidneys and other tissues of different densities through his own head. He continued this work for three or four years along with his other practice. In the fall of 1915, he was suddenly attacked with an eruption on the back, ankles, hands and wrists, which lasted for several weeks, after which his hands became covered with warts of different sizes. A large one on the joint of the right thumb caused much trouble, and in the spring of 1916 became malignant. It was removed and reported by the pathologist to be a very malignant carcinoma. Later there were six other epitheliomas on the forehead and face, which were removed by Dr. Darling of Ann Arbor, Mich. Later, Dr. Pfahler of Philadelphia removed sixty-six keratoses from the hands and face. Three different operations were performed on the thumb; in 1916 it was removed entirely by Dr. C. A. Porter of Boston. At the same time, Dr. Porter removed two large epitheliomas on the forehead, and to be sure of his ground removed the glands of the elbow and axilla. The gland at the elbow was found already to be involved. The patient saw me in 1921, at which time he had an eruption in the mouth which he had been treating with trichloracetic acid for eighteen months. Examination just inside the cheeks at the angles of the mouth showed large quarter-sized areas of leukoplakia, while over the entire roof of the mouth were numerous pea to bean sized areas of nodular leukoplakia. There were also numerous keratoses over the hands and quite a few over the face, as well as some over the chest and back. The large areas were treated with radium, followed in a few days by the use of electrocoagulation to all the areas, under general anesthesia. This was repeated once or twice, and a letter recently received from the patient informs me that, except for a few keratoses on the hands, he is quite well.

Summary: Patient used static machine from 1898 or 1899 for three or four years; interested in studying brain tumors and used himself as subject to study pictures through different densities of flesh and his skull; had severe reaction in 1915, and three different operations on his right thumb before it was totally removed. Involvement of cubital gland. Removal of different epitheliomas from face, and numerous keratoses from face, hands and body. Removal of an extraordinary number of leukoplakial areas from inside of cheeks and hard palate, principally with electrocoagulation. Patient at present comparatively well.

PATHOLOGY

Having described some different microscopic pictures in different phases of roentgen-ray dermatoses, it might be well for me to attempt to outline the probable course of roentgen-ray injury as it is seen on the skin. As Wolbach well emphasizes, "once sufficient injury has been done, complete repair does not take place." It may be that this cumulative result will not come at once; but in time, as a result of vessel changes and

resultant imperfectly nourished tissues, something is bound to happen. The damage from too much exposure to the roentgen ray is more than likely degenerative in type. The tissue most affected by its action is the corium; that least affected is apparently the epidermis.

Changes in the Corium.—Probably one of the most striking changes in this part of the skin is the early disappearance of the pilosebaceous apparatus and sweat glands. Apparently they are very easily affected, and one more readily understands the epilating dose of the roentgen ray that has no effect on the remainder of the skin.

However, we may find remnants of coil glands after all pilosebaceous elements have disappeared. Another change seen very early and commented on by Darier,[17] Unna, Wolbach and others is the rarefaction of the tissues just under the epidermis, with resultant poor staining qualities. In this area we may also find here and there minute abscesses, formed possibly as a result of necrosis from poor blood supply and partly as a result of trauma from outside injuries. Throughout the corium there is a modified or degenerated hyaline collagenous material, as shown by Mallory's phosphotungstic acid connective tissue stain. The striking thickening of the corium, which is constantly seen in The examination of all chronic roentgen-ray dermatoses, is probably due to the production of this imperfect collagenous tissue throughout its lower parts. This also explains the density of the tissues as they are seen clinically. Elastic tissue in the corium does not seem to be affected; at least that is my experience, using Wright's elastic tissue stain. Darier found the elastic tissue fibers wanting or broken; but Wolbach thinks they are increased.

Fig. 9 (Case 2).—Specimen under high power: vessel with lumen still open; much thickened walls with hyaline layer and connective tissue.

Changes in the Smooth Muscle.—These have been variously interpreted. At first glance there seems to be an hypertrophy, and Unna would so interpret it. Wolbach, however, gives us the true explanation for the apparently fat arrectores pilorum—that there are degenerative changes. The muscles are swollen, because of vacuolation and distention of the cells with hyaline material. In old cases, the muscles are no longer seen, or appear only as degenerative remnants.

Changes in the Vessels.—(*a*) Arteries and Veins: After all, the effect of the roentgen ray on the blood vessel is probably the main cause of the injury seen in roentgen-ray dermatoses. If it is an acute overpowering dose, then the effect on the tissues also will be acute and overpowering, with necrosis. If it is a gradual, slow forming affair, then the changes will be slower, but the histology will be much the same in its formative period.

The roentgen ray causes an obliteration of the vessels and probable resultant starving of the tissues. This obliteration reveals itself with swollen endothelial cells. The intima is much thickened. Wyss[18] found it as large as the muscularis or, in some cases, three times as thick. Wolbach says it is composed of connective tissue with much collagenous intercellular substance. The elastic lamina is either divided up into broken fibrils (Wyss, Darier) or may entirely disappear, as elastic tissue stains showed in one of our advanced cases. It may even be replaced by connective tissue. The media also is thickened, owing to increased connective tissues. In fact, the entire vessel may be obliterated and entirely replaced by connective tissue and fibroblasts, as one of the photomicrographs shows.

(*b*) Capillaries: If the arteries and veins are obliterated, then how do we explain the apparently new formed telangiectases and capillaries seen under the corium in so many old roentgen-ray dermatoses? Wolbach thinks they develop from preexisting capillaries in the papillae. On examining these tissues histologically, one finds various stages of these capillaries, some of them quite well formed and quite large. Different authors explain their size as in part due to traction on the capillary walls by the dense, contracting connective tissue of the corium. I should like to explain these capillaries as in part new formed and as an attempt on the part of Nature to overcome a starving process in the tissues due to sclerosis of the deeper vessels. It is true that many of these capillaries will also be obliterated, thus causing a loss of blood supply to certain parts and perhaps resulting, at times, in focal necroses.

Epidermal Changes. — In early roentgen-ray changes, the epidermis does not seem to be so much affected. This is seen in two of our preparations in which the process has not been severe enough to interfere with the circulation. However, if it is of serious extent and of long duration, the opposite seems to be the case. Then we find an hypertrophy of the epidermis with long epidermal pegs dipping down into the corium. The stratum corneum may show quite a few layers and be scaling off, or again there may be some crusting over its surface. The stratum granulosum is quite apparent, and the prickle cell layer will show up as much increased in depth of cells, though nuclei do not always stain well and cells are often vacuolated. If it is an early case, the basal layer is quite intact. In older cases, however, especially with keratoses and ulcerations, one finds a crusted epidermis with lower portions where the basal layer is no longer perfectly intact, and showing a tendency of the epidermal cells to wander off into the imperfect, poorly staining upper corium. At such places, one finds a cellular reaction in the shape of an infiltrating zone of mononuclears,

17. Darier, J.: Ann. de dermat. et syph., October, 1912, pp. 541-562.

18. Wyss: Beitr. z. klin. Chir. (Bruns) **49**: 185-216, 1906; Deutsch. Ztschr. f. Chir. **93**, 1908.

plasma cells, eosinophils and polymorphonuclears. In such areas, one notes many prickle cells with mitoses; the cells take the basic stains better, and we may even find beginning pearls of epidermal cells in the upper corium. We thus get all the changes leading up to malignancy.

COURSE OF EVENTS IN CHRONIC ROENTGEN-RAY DISEASE OF THE SKIN

Constant exposure to radium and roentgen rays brings on a series of changes in the skin which are essentially degenerative. Very early, pilosebaceous and sweat glands are affected, causing a dryness of the skin and a loss of hair. Even at this time or very shortly thereafter, there is a gradual change taking place in the corium due to an effect on the blood supply of the parts exposed. There is an obliterating endarteritis going on, and with it takes place a hyaline collagenous change in the corium with a thickening of it. This leads to that hard, lardaceous, bound down appearance seen so commonly in such cases. The corium seems to be more affected than the epidermis, and degenerates especially in an area just under the latter. Nature attempts to overcome this starving of the tissues through newly formed capillaries and the opening up of capillaries already present. The epidermis reacts in quite a typical manner, as it is no longer able to get its normal blood supply from the usual sources. It simply sets out to find new ones, sending down long epidermal processes toward the weakened upper layers of the dermis. The epidermal cells multiply more and more rapidly in their search for food, and more mitoses are seen. If a gap appears in the corium, as the result of an area of degeneration from lack of capillary supply, as from a sclerosed vessel, the epidermis steps in to fill the gap. If the area is too large to fill, or if a severe secondary infection intervenes, an ulcer forms. Finally, in those old ulcers and keratoses that have lasted long enough, the epidermal cells become almost parasitic; they grow wild and invade the corium. Thus we have the picture of a true epidermoid carcinoma on top of a chronic roentgen-ray dermatosis.

Fig. 13 (Case 8).—The roentgen-ray hand: keratoses, excised finger, atrophic skin and bound down sclerotic areas.

CAUSATION

As to the causation of roentgen-ray carcinomas, many different explanations have been given. Halberstaedter[19] and others have suggested that they resemble much the picture of a xeroderma pigmentosum. It is true that both are in a way the result of certain rays. The end-result is quite similar. Pierre Marie would put them down as due to a stimulating action on the skin, and attempts to prove this experimentally.[20] Gougerot would explain the atrophy as due to a radioneuritis. Roentgen-ray cancer has also been compared to kangri cancer, paraffin cancers, tar cancers and chimney sweep cancers. I myself would support the view that was suggested by Wyss and supported by Ehrmann,[21] Macleod[22] and Rosenbach,[23] and so ably brought out by Wolbach.

Chronic roentgen-ray dermatosis is a degenerative process due to sclerosis of the blood vessels supplying the corium, with resultant loss of nourishment and of resistance or balance on the part of the upper corium. There then ensues an increased proliferation of the epidermis into the corium in its search for nourishment. It finally becomes parasitic, it grows wild, and the epidermoid carcinoma results.

TREATMENT

In the treatment of chronic radiodermatitis we have to consider several phases: prophylaxis; removal of the causative agents, and treatment of their effects on the tissues. The last will be discussed first.

In the acute stages, one gets the best results through astringent lotions, such as Dodd's solution[24] (phenol [carbolic acid], 1.85 parts; zinc oxid, 15.5; glycerin, 4; lime water, sufficient to make 250); again hychlorite solution, 1.20 or 1.30 in water, is of value. I have found glycerite of tannic acid, 25 per cent., in hamamelis water to be a very soothing lotion. It is applied frequently and allowed to dry on. Plain boric acid solution or plain physiologic sodium chlorid solution is also used in some cases. Sampson highly recommends exposure to the quartz ultraviolet rays, even in the acute stage. As the condition progresses toward the chronic stage to the stage of induration, keratoses and ulcerations, much more difficulty arises. Under these conditions, there is always a query in our minds as to the possibility of a malignancy, and the question of a biopsy comes up. Bogrow[25] had excellent results in a roentgen-ray ulcer from the use of Pfannenstiel's technic for treating tuberculous ulcers—the ingestion of sodium iodid, 3 gm. a day, and constant local applications of hydrogen peroxid acidified with 1 per cent. acetic acid in the form of moist dressings. Free iodin is liberated as the iodid comes in contact with the

19. Halberstaedter, L.: Ztschr. f. Krebsforsch. **19**: 105-114, 1923.

20. Marie, Clunet, and Raulot-Lapointe: Bull. de l'Assn. franç. pour l'etude du cancer **3**: 404-426, 1900.
21. Ehrmann, F.: Paris méd., 1913-1914, pp. 381-391.
22. Macleod, J. H. M.: Diseases of the Skin, New York, Paul B. Hoeber, 1921.
23. Rosenbach, F.: Arch. f. klin. Chir. **92**: 1-12, 1910.
24. Desjardins, A. U., and Smith, F. L.: Surg. Clin. N. Am. **4**: 479 (April) 1924.
25. Bogrow, S. L.: Arch. f. Dermat. u. Syph. **120**: 523-536, 1914.

active oxygen. Pusey highly recommends the use of carbon dioxid snow for indolent ulcers. Porter has had excellent results from the excision of local ulcerative and keratotic areas and skin grafting. He reports that he has never seen one of these areas break down again. I have treated many of these keratoses and localized ulcers with electrocoagulation with excellent results. In some cases, too, I have seen valuable results through weekly exposures to the ultraviolet quartz light, as recommended by Sampson, Snow [26] and others. I tried to give sufficient dosage to cause an erythema. This treatment seems to be of value in softening up indurated, bound down tissues, and also in alleviating the terrible night pains of which these patients complain. This therapy sets up a local leukocytosis and increased blood supply. Thereby the starved tissues once more get their blood supply, for the time being at least, and take on a more normal appearance. Strange as it may seem, screened doses of roentgen ray have been used in treatment of roentgen-ray dermatoses, especially the ulcers and keratoses, by MacKee and others; and on the same principle screened radium by Degrais [27] and others. As I have found from experience, it is well in using radium to have it heavily screened in order to have it as nonirritating as possible. It is remarkable how it will cause the disappearance of keratoses and ulcerations, and how it will soften up bound down, sclerotic areas. I have never employed roentgen ray very much. From a histologic standpoint it is easy to understand how the action of these two agents cannot always be looked on as a permanent effect, owing to the fact that in the end it will only cause more endosclerosis of the vessels. Degrais, however, is very enthusiastic over the action of radium, and several of my patients have had almost complete disappearance of severe subjective symptoms, to say nothing of alleviation of objective symptoms through its use.

Fig. 14 (Case 9).—Many healed keratoses on hands; some atrophy of skin; right thumb removed; result from surgery, radium and electrocoagulation.

After all, the real treatment of radium and roentgen-ray dermatitis is prophylaxis, and that is what we should all work for in the future. If all physicians, dentists and technicians working with these agents will take proper precautions, chronic radiodermatitis will really, in the years to come, become a vanishing disease. It is not necessary to go into full details as to protective measures to be used. If one is working with radium, it should be stored in a chamber lined with 8 cm. of lead. Long forceps should always be employed in handling it. It should be carried from place to place in a box lined with 1 cm. of lead. All manipulations should be as rapid as possible. If needles are used, Soiland [28] advises the use of lead blocks perforated to hold the needles, leaving only the eye exposed. He also gives the sensible advice that all accessories be prepared beforehand. In fact, we should use all the protective devices obtainable. We must remember that certain rays of radium will pass through a foot of steel, and Pfahler [29] has demonstrated gamma rays of radium at 18 inches distance, after having passed through one-fourth inch of lead. As for the use of roentgen ray, what better recommendation can I give as to protection than that any one interested should consult the revised report [30] of the X-Ray and Radium Protective Committee of the Royal College of Physicians? A somewhat similar report has been made in our country by the Safety Committee of the American Roentgen Ray Society.[31] In any case of doubt, it is easy for us to carry a dental film in our pocket for a week or so, or to place several of these at convenient places on the walls. One should always see to it that the lead in a room overlaps. There should be no cracks. Moreover, I would especially urge the need of greater protective side plates on fluoroscopic apparatus, and on the necessity of always wearing leaded rubber gloves during fluoroscopic work. Many physicians now consider the fluoroscope as an indispensable part of their office equipment. In their scientific zeal, I fear that they do not always take the precautions that they should. As one of my patients said: "I usually wore gloves, but many times didn't." I feel that in the future this is going to be one of the especial fields of danger, as it has in the past. Queries often come up as to the protective value of other materials in filtering out rays. Berthold and Glocker [32] found that a cement block 25 cm. thick was equivalent to 3 mm. of lead. If it is 10,000 square centimeters in size, 50 cm. of brick equals 4.5 mm. of lead. They urgently recommend in the window of the roentgen-ray room two lead glass panes instead of one, each 18 mm. thick. They consider this absolutely essential and say that in most roentgen-ray rooms the lead glass pane is the weakest point of protection. Here, again, the dental film may tell the operator the truth about his particular leaded window.

SUMMARY

1. It is my impression that roentgen-ray dermatoses in physicians and technicians are far more numerous than the literature would lead us to believe. Many cases, even severe ones, have probably never been reported.

26. Snow, L. H. A.: M. Rec. **100**: 927-930 (Nov. 26), 981-985 (Dec. 3) 1921.
27. Degrais, P.: Presse méd. **37**, 364 (June 5) 1920; Paris méd. **12**: 293-299 (April 8) 1922.
28. Soiland, A.: Am. J. Roentgenol. **9**: 683-684 (Oct.) 1922.
29. Pfahler, G. E.: Am. J. Roentgenol. **9**: 803-808 (Dec.) 1922.
30. X-Ray and Radium Protective Committee: Revised Report 1, Brit. J. Radiol. **29**: 282.
31. Report, Safety Committee, American Roentgen Ray Society, J. Roentgenol. **10**: 246, 1923.
32. Berthold, R., and Glocker, R.: Strahlentherapie **16**: 507-511, 1924.

2. In six of the cases reported, a clinical diagnosis of malignant degeneration was made, and was confirmed microscopically in three, these three being the only patients allowing microscopic examination. Two of these physicians have had a finger removed because of malignant change, and one has undergone several major operations, lost a thumb, had glands dissected out and finally recovered through this and the use of electrocoagulation and radium.

3. A microscopic study of tissues from selected roentgen-ray dermatoses shows that it is a degenerative change resulting from sclerosis of the vessels supplying the skin: the glandular elements of the corium disappear; the corium is much thickened from the formation of a degenerated hyaline, collagenous-like material; new formed capillaries (telangiectases) attempt to replace the lost blood supply of the corium. In early stages, the epidermis is not much affected; but in older cases, the epidermis proliferates in its hunt for nourishment from the corium and sends down epidermal processes, which finally grow wild and take on a malignant change.

4. The treatment of chronic roentgen-ray and radium dermatoses consists in the use of quartz lamp therapy, carbon dioxid snow, electrocoagulation, surgery, and in some cases radium and roentgen-ray treatment. It is quite successful if not too much damage has been done and if instituted early. The best treatment, however, is prophylaxis.

5. Roentgen ray and radium, when used properly and with care, are not a danger to the patient or the operators.

6. Because of the present widespread use of fluoroscopes, radium and roentgen-ray apparatus, especially by general medical men and dentists, I believe that great care should be taken in protecting the operators.

7. I advise the adoption of the measures recommended by the Royal College of Physicians and the American Roentgen Ray Society.

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TRUE CHOLESTEATOMA OF THE CECUM *

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AND
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CHICAGO

As far as we are able to learn from the literature, we are presenting the first reported case of intestinal cholesteatoma (epidermoid). This is rather puzzling, because twelve cases of dermoid cysts, which, from a histogenetic point of view, stand close to epidermoids, are reported in the region of the colon, and about twenty more in the mesentery of the small intestine.[1] Cases of ovarian dermoid cysts are sometimes localized quite close to the intestine.

Under the name cholesteatoma, two different things are understood. First there are rare cystic tumors with thin epithelial lining and a silvery content, which is formed of epithelial cells and cholesterol tablets. Such tumors are found in the skull, the spinal cord and very rarely in the cranial bones—frontal sinuses[2]—and temporal bones. These are supposed to be true tumors originating from meninges or displaced embryonic epidermic germs. At some place in the covering meninges or neoplastic cyst wall, a squamous epithelial lining is always present.

On the other hand, sometimes chronic inflammation with squamous epithelial metaplastic transformation of normal epithelial covering, or partial destruction of a squamous epithelial duct, can produce practically the same changes, including microscopic structure. It occurs in the ear (otitic cholesteatoma), urinary passages,[3] gallbladder, mammary gland and uterus. In these cases we find no neoplastic elements—just the same epithelial covering perhaps undergoing metaplastic changes. This produces, through desquamation, the characteristic silvery content in the previously existing cavity, simulating at times malignant growth, as, for instance, destruction of bony substance by otitic "cholesteatoma."

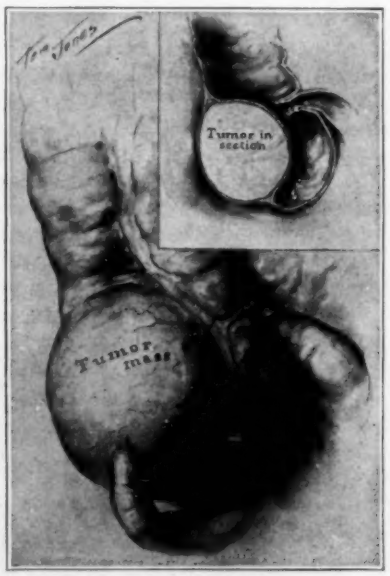

Fig. 1.—Gross specimen.

It would be better to make a clear differentiation between these two conditions. We could use the terms "true cholesteatoma" and "false" or "inflammatory cholesteatoma" or, better still, "cholesteatoma" and "cholesteatosis" (i. e., inflammatory). It is, however, not always possible to make a clean cut differentiation between the two conditions. Only in those cases in which we have a newly formed cyst cavity and wall can we be sure of the true neoplastic origin of a cholesteatoma.

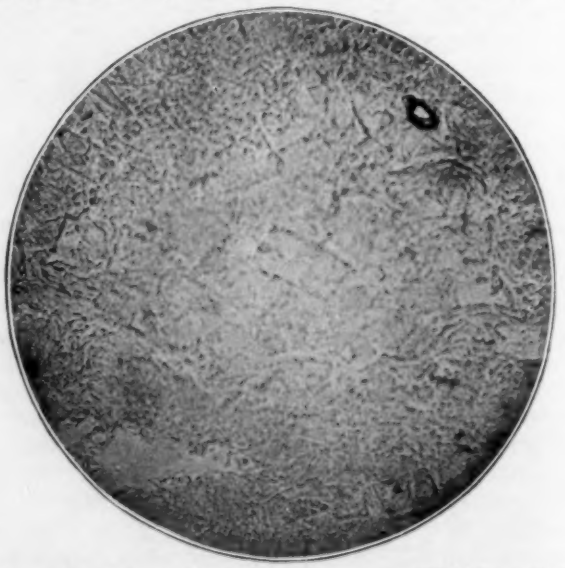

Fig. 2.—Content of the cyst under low magnification: cholesterol tablets and squamous epithelial cells.

* From the West Suburban Hospital, Oak Park, Ill.

1. Forster: Beitr. z. klin. Chir. **124**: 116-138, 1921.
2. Wolff, H.: Beitr. z. klin. Chir. **130**: 215-223, 1923.
3. Klug, W. J.: Beitr. z. klin. Chir. **127**: 123-131, 1922.

As was mentioned, a close relationship exists between dermoid cysts and cholesteatomas (epidermoids). Occasionally in the cholesteatomas, hair is present with corresponding histologic findings. In the case reported here, some atypical glandular formations were present.

The essential features of our case are as follows:

REPORT OF CASE

History.—S. G. S., a white man, aged 31, was admitted to the hospital, Nov. 2, 1924, after he had been ill for twenty-four hours, complaining of diffuse abdominal pain, which seemed worse on the right side. There had been similar attacks every four or five months for the preceding two years. The patient stated that a full meal distressed him, and that opening his belt afforded some relief. The bowels were irregular, but regulation of the diet measurably controlled the situation.

On admission to the hospital, the physical findings were fairly typical of an attack of appendicitis. A distinct tender mass was palpable between the border of the right rectus muscle and the anterior superior spine of the ilium.

Operation was undertaken for the removal of the appendix, which was found markedly inflamed and adherent by its

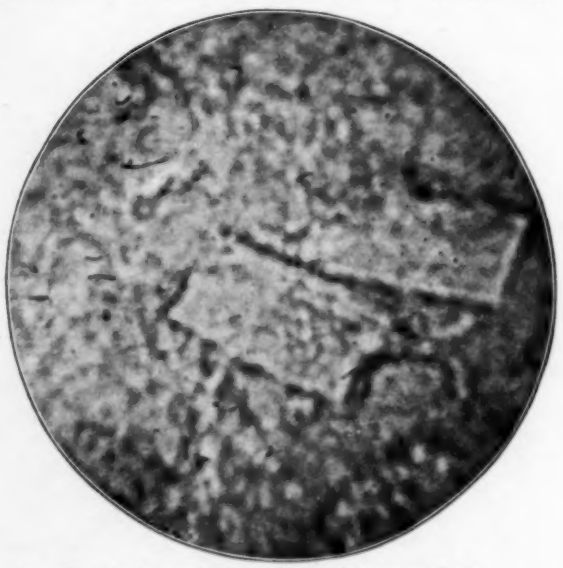

Fig. 3.—Content of cyst under high magnification.

distal extremity to what appeared to be a tumor encysted in the outer wall of the cecum. After the appendix had been removed, the cecal tumor was dealt with. The cecum was freely movable, and the tumor was enucleated without difficulty. The tumor cavity did not communicate with the lumen of the bowel. Excision of the redundant wall, or capsule, completed the operation. The patient recovered promptly, and shortly returned to his work—that of an insurance agent.

Laboratory Findings.—The specimen consisted of a loose, silvery white ball, 5 cm. in diameter, some silvery membranes loosely attached to the ball, and more of the same membranes separated from it, together with two small pieces of injected cyst wall.

The silvery content of the cyst consisted microscopically of hornifying, squamous epithelial cells and cholesterol tablets. These tablets did not dissolve practically at all in cold ethyl alcohol, but dissolved in chloroform, with formation of multiple droplets, which stained with sudan III.

As far as the histologic structure of the cyst wall was concerned, the epithelial innermost lining was preserved only in places, and consisted of two or three layers of squamous, flat epithelial cells separated from underlying connective tissue by a definite basal membrane. In one place an epithelial papilla very similar to those in skin epidermis was present in the deeper tissues; it consisted of from twenty to thirty sheets of malpighian cells, and seemed to be well limited by basal membrane. In other places the inner lining was formed by loose granulation tissue richly infiltrated with lymphocytes. About one third of these connective tissue cells were in a state of epithelioid transformation somewhat resembling tuberculous granulations. Some giant cells (foreign body type) were present, particularly in the superficial layers. No cholesterol deposits were seen. Very numerous small vessels

Fig. 4.—Wall of the cyst: above, epithelial lining; below and on the left side, glandular formations.

supplied this loose tissue. In some places this inner layer had a more pronounced fibrous character.

The middle layer of the cyst wall consisted chiefly of fibrous tissue. Numerous foci of plasma cells or lymphocytic infiltration were seen here. Some glandular formations were present in this layer: cross-sectioned tubes outlined by three layers of columnar cells. The outer fibrous sheet was covered by the peritoneum; it contained numerous big vessels and multiple foci of lymphocytic infiltration.

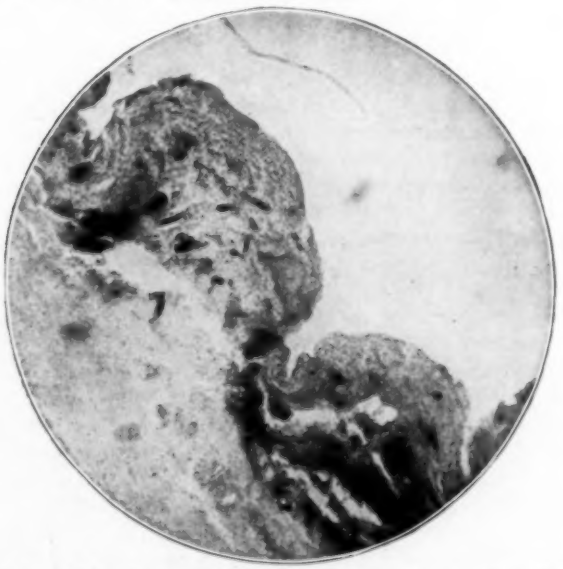

Fig. 5.—Wall of cyst: epithelial lining absent; in one place (in the center) there is an epithelial papilla.

COMMENT

Thus the microscopic examination confirmed the diagnosis of true cholesteatoma of the cecal wall. The typical content, as well as the presence of epithelial lining, was characteristic of tumors of this kind. Although some signs of inflammation were present (foci of lymphocytic and plasmocellular infiltration

around the vessels and without visible connection with vessels) the condition could hardly be suspected to be of inflammatory origin. The inflammatory changes common to any tissue deposits of cholesterol played here but a secondary rôle. The neoplastic character was well pronounced, for there was a newly formed cavity between the serous and muscular sheets of the cecal wall, and this cavity was in no way connected with the intestinal canal. There were some peculiarities in the case when compared with cerebral cholesteatomas. The wall of this tumor was much thicker, and the blood supply was much more abundant. It depended evidently on the differences in the local conditions. It is obvious that a cyst will develop a thicker wall in the abdominal cavity than in the skull.

VALUE OF COOPERATION BETWEEN INTERNIST AND SURGEON

IN THE MANAGEMENT OF COMPLICATED GASTRIC CONDITIONS, WITH SOME REMARKS ON PARTIAL GASTRECTOMY

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ROCHESTER, MINN.

The satisfactory surgical management of conditions in which surgery is indicated is, in large part, dependent on close cooperation between internist and surgeon; and, since this fact has been more generally appreciated, the results of surgical treatment have steadily improved. The diseases of the thyroid, spleen and kidney, which are now more intelligently understood and efficiently treated because of the sincere and united efforts of internist and surgeon, are striking examples of such improvement.

Probably no organ has afforded such an opportunity for coordinated clinical investigation as has the stomach. Recent developments in the management of gastric obstructions illustrate what may be achieved with such cooperation. In 1921, Berkman [1] directed attention to the excessive operative mortality rate in cases of marked pyloric obstruction, and was able to show that by sufficient preoperative gastric lavage, and by carrying out the operative procedure in two stages—the relief of obstruction and the removal of the cause of the obstruction—the necessary surgical measures could be accomplished with much less risk than had followed the one-stage operation when performed without adequate preoperative treatment. The results stimulated further studies, so that now there are available very accurate methods for determining the surgical risk in such cases; and, what is of even greater importance, preoperative management has so reduced this risk that it has been possible practically to eliminate the necessity of the two-stage operation in cases of gastric retention due to organic lesions of the stomach or duodenum.

Many observers have described the toxemia associated with high intestinal obstruction, or stasis, but only recently have such observations been adequately applied in a practical way to the recognition, control or elimination of such toxemia as a preparation for surgical treatment. In 1923, Brown, Eusterman, Hartman and Rowntree [2] described the syndrome and the blood chemistry in such cases; and McVicar [3] recently reported a series of thirty cases of this type, showing how the blood chemistry parallels the clinical condition of the patient, the degree of the toxemia being determined by the increase in the blood urea, in the carbon dioxid combining power of the plasma (alkalosis), and in the decrease of the blood chlorids. He has also shown that tetany may be anticipated when the carbon dioxid combining power exceeds 100 per cent. by volume. It is not only by estimating these factors, but also by restoring them to normal, that the internist is able to contribute so much to the safe management of such cases. This restoration is accomplished by intravenous administration of sodium chlorid solution and 10 per cent. glucose, and by the avoidance of alkalis. Under such management the improvement in patients, even when in a condition so critical as to be beyond the control of other measures

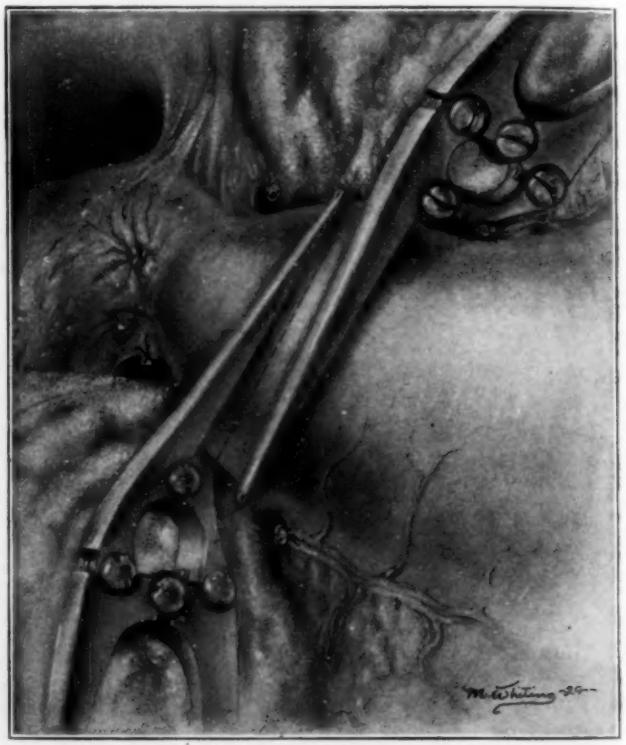

Fig. 1.—Line of division for resection for partial gastrectomy when there is extensive induration of the duodenum.

of relief, is most striking, and constitutes an advance in treatment which is little less than epoch making.

Appropriate medical management before operation is also highly desirable and effective in patients with highly inflammatory lesions of the stomach or duodenum, or when recent exacerbation of the inflammatory process has led to an increase in the extent and activity of the local peritonitis, and has made the patient acutely ill, thus increasing the hazards of immediate operation. Patients with marked anemia, secondary to single or repeated hemorrhages from peptic ulcer, should be under competent medical supervision until the maximal improvement has been reached. To patients with recurring ulcer following operation, or to those who have developed immediate or late compli-

1. Berkman, D. M.: Preoperative Management in Cases of Gastric Retention, M. Clin. N. Am. **5**: 411 (Sept.) 1921.
2. Brown, G. E.; Eusterman, G. B.; Hartman, H. R., and Rowntree, L. G.: Toxic Nephritis in Pyloric and Duodenal Obstruction; Renal Insufficiency Complicating Gastric Tetany, Arch. Int. Med. **32**: 425 (Sept.) 1923.
3. McVicar, C. S.: A Discussion of the Clinical and Laboratory Findings in Certain Cases of Obstruction in the Upper Gastro-Intestinal Tract; The Rôle of Blood Chemistry in Diagnosis, Prognosis and Treatment of This Condition, Am. J. M. Sc., to be published.

cations due to mechanical difficulties in the anastomosis, the experienced internist can be of invaluable assistance in advising as to the necessity for surgical intervention, and in outlining preoperative preparation.

In the management of patients who have been operated on for benign lesions of the stomach, the internist should play a large part in making certain the good results that should follow proper surgical measures in suitable cases. For a long time it has been recognized by surgeons that a prescribed regimen following operation for peptic ulcer is rational, and it is probably true that the success or failure of operation for peptic ulcer can be determined during the first few weeks after the operation. It is during this time that the internist finds a real opportunity not only to predict the end-results, but also to influence the early convalescence of the patient after operation. The more he takes advantage of this opportunity, the better will be the late results of the surgical treatment of chronic peptic ulcer. Valuable as such postoperative treatment should be, it must not be so rigidly exacting that susceptible patients may develop functional digestive complaints in exchange for the cure of the organic complaint.

Fig. 2.—Withdrawing Payr clamp and tightening first row of duodenal sutures.

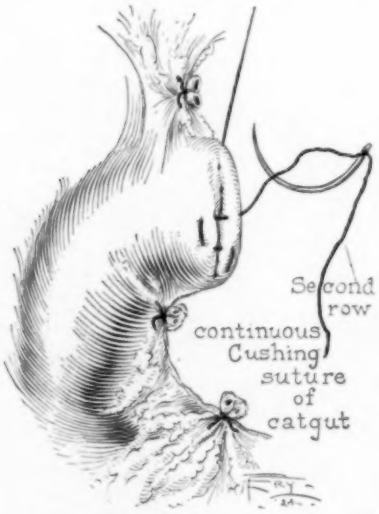

Fig. 3.—Placing of second row of sutures to close duodenal stump.

Fig. 4.—Duodenum closed by two rows of sutures and omentum caught over suture line.

We are becoming more and more appreciative of the value of medical supervision in the more complicated conditions of the stomach, and the hospitalization of patients in the gastro-enterologic service, prior to operation, is becoming more and more common. Partial gastrectomy, for example, may, under certain circumstances, be a formidable procedure which entails considerable risk; but if the risk and difficulty can be lessened by preoperative measures that not only place the patient in a more favorable condition for the operation, but also render the operative field in better condition for the surgeon, such preparation is definitely justified. My own experience with the hospitalization of such patients, under the supervision of the gastro-enterologic staff, until they are adequately prepared for operation, has been most gratifying. From Jan. 1, 1924, to Feb. 1, 1925, I performed partial gastrectomy on seventy-four patients, with one death.

The seventy-four cases in the series were: gastric cancers, thirty-three; gastric ulcers, twenty-five; recurring gastric ulcer, one; gastrojejunal ulcers, nine; duodenal ulcers, four; jejunal ulcer, one, and malfunctioning gastro-enterostomy, one. The majority of these patients had received preoperative rest and treatment as outlined, and the convalescence has also been followed, when indicated, by the members of the gastro-enterologic staff. Since many of these patients had had one or several previous operations, and various serious complications have been met and dealt with, the gratifying results are a definite tribute to the value of medical management, because the surgical technic has not been modified appreciably.

The sixty-four cases in the series were: (1) gastric cancers, thirty; (2) gastric ulcers, twenty; (3) recurring gastric ulcer, one; (4) gastrojejunal ulcers, eight; (5) duodenal ulcers, four, and (6) jejunal ulcer, one. The one death may be attributed to an ill advised choice of operation. The patient had an advanced carcinoma of the stomach with obstruction, and the disease had invaded the pancreas and the gastric and esophageal lymph nodes by direct extension until it was obviously incurable. The marked obstruction, however, demanded relief, and a palliative partial gastrectomy was performed. The patient's immediate recovery from the operation was satisfactory, but he later developed bronchopneumonia and died on the tenth day after operation. A gastro-enterostomy would have been a better procedure.

Since the indications for partial gastrectomy are increasing, and since a carefully planned operation is as essential to good results as the proper preparation of patients for operation, a brief review of the technic of partial gastrectomy may appropriately be included.

THE TECHNIC OF PARTIAL GASTRECTOMY

The incision for partial gastrectomy is made preferably to the left of the median line, particularly in secondary operations when the previous incision has

been to the right of the median line. Since the pylorus is practically in the median line, its normal position being only slightly to the right, it is easily approached through an incision in the left rectus. Such an incision permits more ready access to the upper limits of the lesser curvature, and to the body of the stomach in high-lying or extensive lesions. An adequate incision having been made, a self-retaining retractor is a distinct aid in maintaining good exposure. Throughout the entire operation, as the stomach is mobilized, it is important to protect the operative field from contamination by gauze packs introduced into the lesser peritoneal cavity.

In a primary partial gastrectomy, particularly when the lesion is in the body of the stomach, and more particularly when this lesion is an ulcer on the posterior wall and adherent to the pancreas, the mobilization of the stomach is preferably started at the pylorus. The line on which the division should be made is important, because it is always possible to make the closure of the duodenum, or the pyloric stump, absolutely secure if this line is carefully selected. In cases in which there has been ulceration of the duodenum with scarring, or a previous operation has resulted in a scarred duodenal wall, the line of division at the pyloric end should be made on the gastric rather than on the duodenal side of the pylorus, thus avoiding the sometimes serious difficulty of turning in a scarred area of the duodenum. The division should, therefore, be made far enough on the gastric side of the pylorus so that inversion is possible without encroaching on the pyloric muscle (Fig. 1). The use of two small Payr clamps obviates the danger of either clamp slipping during the course of the operation. Closure in such cases can be very satisfactorily made by two rows of continuous mattress sutures, the first row including the clamp, and the second row in the opposite direction, giving a very satisfactory inversion (Figs. 2, 3 and 4). The mobilization of the stomach can then be carried on easily, because of the excellent exposure of both the anterior and posterior walls, and the gastrohepatic omentum and gastrocolic omentum divided until a point is reached about 4 cm. above the line on which the stomach should be resected. A rubber covered clamp is then placed on the stomach, parallel to the long axis of the body, and at as high a point as possible. Decision is then made as to whether the anastomosis should be posterior or anterior. If enough of the stomach remains so that the entire anastomosis will hang easily below the mesocolon, a posterior anastomosis is satisfactory, the first loop of the jejunum being brought up between the opening of the mesocolon and approximated to the end of the stomach, with the proximal jejunum in apposition to the lesser curvature of the stomach. The first row of sutures is placed before the stomach is removed, and after the resection, the anastomosis is completed in the usual way. Usually, particularly in resections for carcinoma, or in cases in which the mesocolon is involved by extensive inflammatory products, it is preferable to make an antecolic end-to-side anastomosis. This is made on a long loop (between 30 and 40 cm. from the duodenojejunal angle), with the loop approximated to the end of the stomach, proximal jejunum to lesser curvature (Fig. 5). In most cases, such an anterior anastomosis should be completed by a small suture entero-anastomosis opposite the duodenojejunal angle. This entero-anastomosis is, I believe, very important in preventing retention of the secretions of the proximal loop, a condition that occasionally occurs following an anterior anastomosis. Since adopting the practice of adding an entero-anastomosis more or less as a routine, I have encountered no mechanical difficulties in the postoperative course of such cases. Furthermore, in cases in which a plastic operation has been necessary on the jejunum following operation for gastrojejunal ulcer, it serves as a safety valve against undue tension on the suture line in the jejunum. It also serves to prevent undue back pressure on an imperfectly closed duodenal stump. During 1924, I used this type of operation in the majority of partial gastrectomies for cancer.

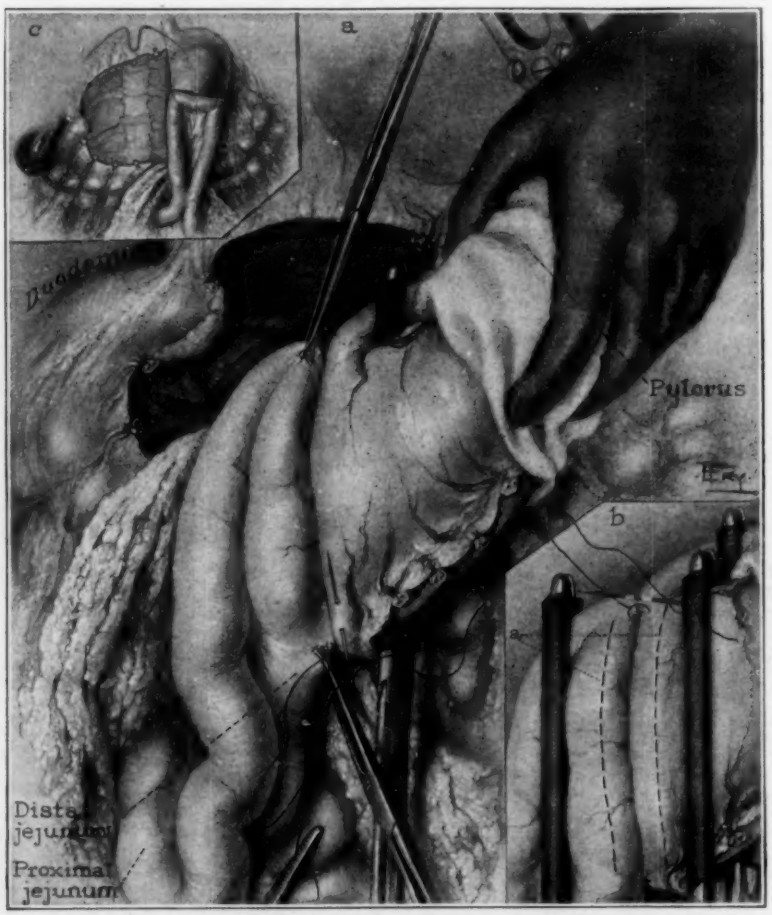

Fig. 5.—*a*, approximation of 16-inch jejunal loop to end of stomach and in front of the colon, with posterior suture begun; *b*, posterior suture completed by an interlocking suture; dashes *a* show line of resection on stomach and incision in jejunum; *c*, relation of stomach, proximal and distal jejunal loops and entero-anastomosis at completion of operation.

There certainly can be no objection to an entero-anastomosis in operations for cancer. In the few cases in which it has been used for gastric ulcer, the question naturally arises whether there is diversion of enough of the contents of the duodenal loop to make such a loss of alkaline secretion a hindrance to ultimate and complete cure. In the examinations made subsequent

to operation in these cases, it appears that the alkalization of the gastric contents is sufficient; and the acidity has been reduced just as decidedly in the cases in which an entero-anastomosis has been made as in those in which it has not been made.

Finally, it is important to record that in the series of sixty-four cases, ethylene anesthesia, combined when necessary with sufficient ether to secure satisfactory relaxation, was used in sixty cases; a combination of local and ether anesthesia in three cases, and ether anesthesia alone in only one case. I am convinced that ethylene in gastric surgery definitely lowers the risk of pulmonary complications, which are the cause of 50 per cent. of deaths in operations in the upper abdomen.

MERCUROCHROME-220 SOLUBLE AND GENTIAN VIOLET

BACTERICIDAL EFFICIENCY BY INTRAVENOUS ROUTE *

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AND
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In March, 1924, Young and Hill [1] published some very interesting results in the treatment of septicemia and local infections by intravenous injections of mercurochrome-220 soluble and gentian violet, reporting a series of twelve cases. The series was divided into two groups. The first group included seven cases of local and generalized (bacteremic) infections with either staphylococcus or colon bacillus, and one case of chronic pyelitis due to *Bacillus lactis-acrogenes*. These patients were treated by intravenous injections of mercurochrome-220 soluble. The second group was composed of five cases of staphylococcic infection of both the local and bacteremic type, including some cases with multiple pyemic abscesses. These patients received intravenous injections of gentian violet. Cures were obtained in all twelve cases.

In June, 1924, Whitman [2] reported equally remarkable results from the intravenous injections of mercurochrome in ten cases of chronic and subacute gonorrhea. He said: "The rapid subsidence of symptoms in all, and the abrupt termination of symptoms in some cases was almost incredible."

In August of the same year, Young and Burkhaug [3] reported cures in two cases of scarlet fever complicated with erysipelas and streptococcus septicemia that were treated by intravenous injections of mercurochrome.

Both mercurochrome and gentian violet were used in dosage varying from 2 to 5 mg. per kilogram of body weight. In two instances, doses of 7.5 mg. and of 8 mg. of mercurochrome per kilogram of body weight were used by Young and his collaborators.

The present paper presents a report of an investigation into the bactericidal efficiency of mercurochrome and gentian violet, administered by the intravenous route. The investigation consisted of two parts:

1. A study was made of the clinical results obtained from the use of intravenous injections of mercurochrome and gentian violet in five cases of sepsis, including one case of staphylococcus bacteremia, one case of streptococcus bacteremia, one case of colon bacillus bacteremia, and two cases of subacute gonorrhea.

2. An experimental study was made of the effects of exposure of cultures of staphylococcus, streptococcus, and of colon bacillus to mercurochrome-220 soluble and to gentian violet, respectively, in dilutions which represent the highest concentration obtainable in the human body from the largest doses of the dyes that are regarded safe clinically.

CLINICAL OBSERVATIONS

Mercurochrome and gentian violet, in freshly prepared solutions, were employed in doses of from 5 to 7 mg. per kilogram of body weight in three cases of septicemia and in two cases of local gonococcal infections. The results obtained are indicated in the following case reports:

CASE 1.—R. D., a man, admitted, Feb. 20, 1924, complained of headache, pain in the joints and fever. The present illness was of six weeks' duration, though the patient did not go to bed until a few days previous to admission, when the symptoms became decidedly worse. On the day of admission, the patient was found dull and listless, with a temperature of 100.5 F., pulse 88 and a blowing systolic murmur at the apex.

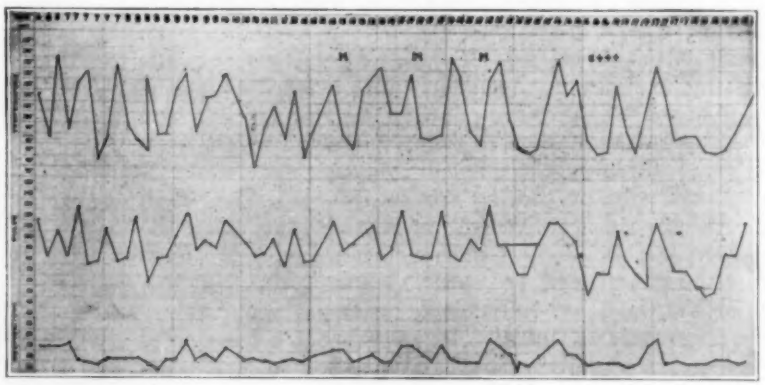

Chart 1.—Clinical record in Case 1: M, mercurochrome, 5 mg. per kilogram; C + + +, strongly positive blood culture.

The leukocyte count varied from 9,600 to 22,200, with a differential count of from 86 to 93 per cent. neutrophils. The further clinical course of this patient is indicated in Chart 1. After the isolation of *Streptococcus hemolyticus* from the blood, mercurochrome was administered intravenously on three successive days. There was no improvement in the clinical condition, and a blood culture taken after the mercurochrome therapy again yielded an abundant growth of the streptococcus. Death occurred several days after the last injection of mercurochrome, and the diagnosis was confirmed by a necropsy.

CASE 2.—J. U., a man, admitted, June 12, 1924, complained of chills, fever, sweats and generalized pain. The present illness began three weeks previous to admission, with fever and pain across the small of the back. On the second or third day after the onset, severe chills occurred, which continued at irregular intervals for two or three days. Then, after

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* From the Departments of Internal Medicine and Pharmacology of the University of Oregon Medical School.

1. Young, H. H., and Hill, Justina H.: Treatment of Septicemia and Local Infections by Mercurochrome-220 Soluble and by Gentian Violet, J. A. M. A. **82**: 669 (March 1) 1924.

2. Whitman, W. A.: Mercurochrome-220 Soluble Intravenously in Chronic Gonorrhea and Its Complications, J. A. M. A. **82**: 1914 (June 14) 1924.

3. Young, H. H., and Burkhaug, Konrade: The Cure of Scarlet Fever Complicated with Erysipelas and Streptococcus Septicemia by Intravenous Injection of Mercurochrome-220 Soluble, J. A. M. A. **83**: 492 (Aug. 16) 1924.

several afebrile days, there followed similar recurring periods of chills and fever. The clinical course of this patient after admission to the hospital is indicated in Chart 2. A blood culture, taken June 16, yielded an abundant growth of *B. coli-communior*. After two intravenous injections of mercurochrome, a negative culture was obtained from the blood. However, since the patient still seemed critically ill and since the temperature had begun to rise again, the mercurochrome therapy was resumed. Three more intravenous injections of 5 mg. per kilogram of body weight were given on three successive days. A blood culture taken on the day after the last injection of mercurochrome again yielded an abundant growth of the colon bacillus. Notwithstanding the positive culture, the patient's condition suddenly improved two days after the last injection, and complete recovery ensued.

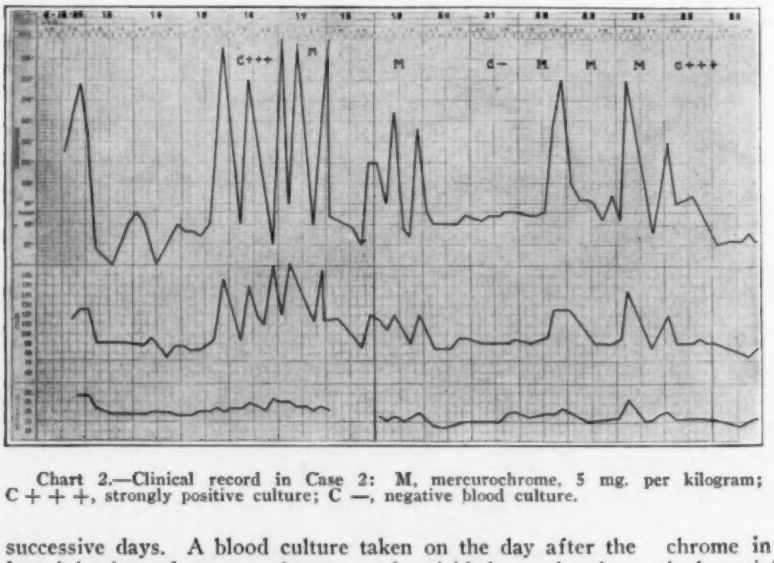

Chart 2.—Clinical record in Case 2: M, mercurochrome, 5 mg. per kilogram; C + + +, strongly positive culture; C —, negative blood culture.

A superficial examination of this record might lead one to attribute the recovery to the mercurochrome therapy. A more careful consideration, however, discloses the following facts: 1. The general course of the temperature curve during the mercurochrome therapy is essentially like the temperature record during the three weeks preceding the onset of treatment; namely, alternating febrile and afebrile periods. 2. Although a negative culture was obtained from the blood after the second intravenous injection of mercurochrome, it will be observed that after the fifth injection, the blood culture was again positive, yielding approximately as many colonies per cubic centimeter of blood as did the original culture before any treatment was instituted. It will also be seen that the negative culture was taken during an afebrile period. In view of these facts, it seems reasonable to conclude that the recovery in this case was independent of the mercurochrome therapy.

Spontaneous recovery in *B. coli* sepsis is not at all unusual. Jacob [4] reported thirty-nine cases, with 60 per cent. recoveries. Coleman and Hastings [5] observed three cases, in all of which the patients recovered. More recently, Felty and Keefer [6] of the Johns Hopkins clinic reported a series of twenty-five cases, in seventeen of which the patients recovered.

4. Jacob, L.: Colon Bacillus Septicemia, Deutsch. Arch. f. klin. Med. **97**: 303, 1909.

5. Coleman, Warren; and Hastings, T. W.: Bacillus Coli Communis: The Cause of an Infection Clinically Identical with Typhoid Fever, Am. J. M. Sc. **137**: 199 (Feb.) 1909.

6. Felty, A. R., and Keefer, C. S.: Bacillus Coli Sepsis: Clinical Study of Twenty-Eight Cases of Blood Stream Infection by the Colon Bacillus, J. A. M. A. **82**: 1430 (May 3) 1924.

CASE 3.—H. L., a man, admitted, Oct. 9, 1924, complained of fever, headache, and pain in the back. An abscess in the region between the third and fourth lumbar vertebrae, which apparently followed an attempted lumbar puncture, was opened and drained two days before admission. When first seen by us the patient was irrational, and his general condition seemed quite serious. Cultures from the blood and from the discharging abscess each yieded a growth of *Staphylococcus albus*. Chart 3 shows the clinical course of this case, indicating a progressive bacteremia, as demonstrated by frequently repeated blood cultures, notwithstanding the vigorous prosecution of mercurochrome and gentian violet therapy. The first culture, taken before any treatment was instituted, yielded approximately fifteen or twenty colonies to 1 c.c. of blood. The subsequent cultures taken during the course of treatment showed a steady rise in the number of colonies to the cubic centimeter of blood; until, in the last culture, taken after the patient had received two intravenous injections of mercurochrome and three injections of gentian violet in doses of 7 mg. per kilogram of body weight, a growth of approximately 100 colonies to the cubic centimeter of blood was obtained. The patient died two days after this blood culture was taken, on the third day after the last injection of gentian violet.

CASES 4 and 5.—Both patients were young men who gave a history of repeated attacks of gonorrhea. In each instance there was abundant urethral discharge, with gram-negative diplococci demonstrable in the smears. Both patients received five intravenous injections of mercurochrome in doses varying from 5 to 7 mg. per kilogram of body weight. At the end of two weeks, both patients were severely salivated. There was not the slightest improvement in the local infection, the discharge being just as abundant and the organisms just as numerous as before treatment was instituted.

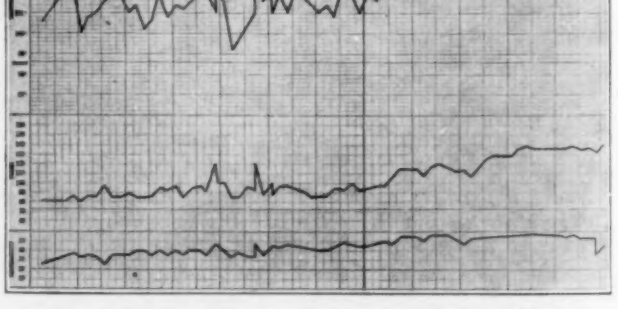

Chart 3.—Clinical record in Case 3: M, mercurochrome, 7 mg. per kilogram; G V, gentian violet, 7 mg. per kilogram; C, blood culture. The plus marks indicate the relative number of colonies per cubic centimeter of blood.

COMMENT

Although the cases reported in this paper are comparatively few, the results here indicated are characteristic of the results obtained in eight additional cases known to us, but which were not under our immediate management. Each of the additional cases terminated fatally, apparently uninfluenced by intensive intravenous treatment with one or the other of these dyes.

Further evidence of the inadequacy of mercurochrome and gentian violet as intravenous bactericides

is furnished by the following report of an experimental study of the direct action of these dyes in vitro:

EXPERIMENTAL STUDY

According to results obtained with experimental animals, reported by Young and Hill,[1] 7 mg. of gentian violet per kilogram of body weight approximates the upper range of therapeutic dosage compatible with safety, particularly if repeated doses are to be used. Clinical reports indicate that mercurochrome in similar dosage not infrequently causes symptoms of excessive mercurial irritation of the excretory organs (Reed and Lum[7]). An intravenous dose of 7 mg. per kilogram of body weight would give a concentration in the total blood volume of approximately 1:10,000. It was therefore thought advisable to test the bactericidal properties of these dyes in that concentration in contact with organisms recovered from the blood stream of human beings.

Churchman[8] has shown that gentian violet in culture mediums enriched with blood retains its activity against bacteria with but little impairment for several days; but that this activity is rapidly lost in the blood stream, disappearing completely in one and three-fourths hours. In the present study, culture mediums enriched with human blood were mixed with mercurochrome and gentian violet, respectively, in concentrations of 1:10,000. These mediums were inoculated each with a culture of *Streptococcus viridans, Staphylococcus albus* and *B. coli-communior,* respectively. Subcultures were then made on blood-enriched broth from each of the tubes after periods of one, two and three hours' exposure. The results are indicated in the accompanying table. It will be seen from an examination of the table that both dyes, in the given concentration, were without bactericidal action on any of the organisms tested after three hours' exposure; that in the case of mercurochrome even twenty-four hours' exposure failed to destroy any of the organisms; and that gentian violet, after twenty-four hours' contact with the organisms, exerted bactericidal action on the staphylococcus alone.

Cultural Results Following Exposure to Mercurochrome and Gentian Violet *

	Mercurochrome-220 Soluble, 1:10,000			Gentian Violet, 1:10,000		
Number of Hours Exposed to Action of Dyes	Streptococcus Viridans	B. Coli-Communior	Staphylococcus Albus	Streptococcus Viridans	B. Coli-Communior	Staphylococcus Albus
1	++	++	++	++	++	++
2	++	++	++	++	++	++
3	++	++	++	++	++	+
24	++	+	+	++	++	−

++ signifies luxuriant growth; +, moderate growth; −, no growth.

* Coleman and Bell's improved gentian violet, and mercurochrome-220 soluble (H. W. D.) were used throughout this work.

SUMMARY AND CONCLUSIONS

1. Clinical observations were made on three cases of bacteremia and two cases of local gonococcal infections treated by intravenous injections of mercurochrome and gentian violet. These observations, which were carefully controlled by cultural checks, seem to indicate that in these five cases the intravascular injection of the dyes in no way interfered with the progress of the infection.

2. Experiments on the effect of dilutions of mercurochrome and of gentian violet on the growth of staphylococcus, streptococcus and *B. coli* in vitro seem to indicate that there was no direct bactericidal action on those organisms from three hours' exposure to mercurochrome and gentian violet in concentrations of 1:10,000, representing the maximal advisable concentration of these dyes in the circulation.

703 Journal Building.

7. Reed, A. C., and Lum, D. D.: Toxic Results of Dye Treatment in Septicemia, J. A. M. A. **83**: 1681 (Nov. 22) 1924.

8. Churchman, J. W., and Herz, L. F.: The Toxicity of Gentian Violet and Its Fate in the Animal Body, J. Exper. Med. **18**: 579 (Nov.) 1913.

CLINICAL STUDIES ON THE KAHN REACTION FOR SYPHILIS

III. THE TEST WITH SPINAL FLUIDS *

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Although reports of a comparatively large number of studies have appeared in the literature dealing with the Kahn precipitation test as applied to serum, only one report has been made on the value of this test as applied to spinal fluid.[1] According to that report, the spinal fluid method is an important addition to the various procedures of the test as applied to serum. As is true of the precipitation test with serum, the spinal fluid procedure does not require incubation, the final reactions being completed within a few minutes after mixing the ingredients. This point is an important practical feature. If, in addition, clinical studies should show that the test as applied to spinal fluids possesses reliability, we should have a simpler and more rapid procedure, which would be a valuable aid in the diagnosis of syphilis of the central nervous system.

This article is based on the study of 1,000 spinal fluids obtained from 382 different patients entering the University of Michigan Hospital. Three hundred and sixty-five of this number were cases of syphilis representing all stages of that infection, while the remaining seventeen were patients with brain and cord lesions of a nonsyphilitic nature. The latter included patients with multiple sclerosis, paralysis agitans, epilepsy, and brain and spinal cord tumors.

Each spinal fluid was examined with the Kahn test at the Michigan Department of Health Laboratories, Lansing, where this test is a routine procedure, standard antigen being employed. The technic of the spinal fluid examination is described elsewhere.[1] Each specimen was examined also with two Wassermann tests; one at the serologic laboratory at the State Psychopathic Hospital, Ann Arbor, and the other at the state laboratories. This method of study was in accordance with the general plan described in the two previous articles of the series.[2]

* Studies and contributions of the Department of Dermatology and Syphilology of the University of Michigan, service of Dr. Udo J. Wile, and from the Bureau of Laboratories, Michigan Department of Health.

1. Kahn, R. L.: Serum Diagnosis of Syphilis by Precipitation—Governing Principles, Procedure and Clinical Application of the Kahn Precipitation Test, Baltimore, Williams & Wilkins Company, 1925, pp. 153 and 188.

2. Keim, H. L., and Kahn, R. L.: Clinical Studies on the Kahn Reaction for Syphilis, I, Diagnostic Value of Test, Arch. Dermat. & Syph. **10**: 722 (Dec.) 1924; Clinical Studies on the Kahn Reaction for Syphilis, II, Specificity of Test, J. Lab. & Clin. Med., to be published.

RESULTS OF EXAMINATION OF SPINAL FLUIDS

The results of the examinations of these fluids are shown in the accompanying tables.

General Paresis.—Six divergent reactions between the Kahn and Wassermann tests were obtained in the examination of 222 spinal fluids from this type of involvement (Table 1). The Kahn test was positive in three of these and negative in the remaining three, while the Wassermann tests varied from negative to four plus positive. The three patients with the negative Kahn reaction had previously received six, eight and five intravenous and intradural injections of arsphenamin, respectively.

TABLE 1.—*Results of Spinal Fluid Tests in General Paresis*

Number of Cases	Kahn Reaction	Wassermann Reaction Cholesterinized Antigen Icebox Fixation 18-Hour	1-Hour
Agreement:			
216	++++	++++	++++
0	—	—	—
Divergence:			
1	++++	+++	++++
1	++++	±	++++
1	+++	++++	++++
1	—	++++	++++
1	—	++	±
1	—	++++	—

Of especial interest is the high sensitiveness of all serologic reactions in this form of neurosyphilis. In spite of the fact that many of these patients have received vigorous treatment with mercury, arsphenamin and tryparsamide, not one examination was entirely negative with the three methods.

Tabes Dorsalis.—Of 124 spinal fluid examinations in tabes dorsalis (Table 2), eighty-seven were positive and nineteen negative with all methods. Eighteen examinations showed varying divergences between the Kahn and the Wassermann test. In this group, the precipitation reaction compares favorably in sensitiveness with either of the complement fixation tests.

TABLE 2.—*Results of Spinal Fluid Tests in Tabes Dorsalis*

Number of Cases	Kahn Reaction	Wassermann Reaction Cholesterinized Antigen Icebox Fixation 18-Hour	1-Hour
Agreement:			
87	++++	++++	++++
19	—	—	—
Divergence:			
1	++++	+	++++
1	++++	++	++++
2	+++	++	++
3	++	++	++
2	++	++	++
2	+	++++	++++
2	+	+	+
1	+	++++	+
1	±	—	++++
1	—	++	++++
2	—	++	—

Diffuse Type.—Of 387 examinations in this group (Table 3), 290 showed agreement and eighty-seven divergence. In this large group of divergent results, the Kahn test appeared to be more sensitive than the eighteen-hour fixation Wassermann, and somewhat less sensitive than the one-hour fixation Wassermann.

Miscellaneous.—In this group, 264 out of 267 examinations were entirely negative with all methods (Table 4). Seventeen of these examinations were of spinal fluids from patients with nonsyphilitic lesions of the brain or spinal cord. The remaining 247 negative examinations represented cases of syphilis without clinical or laboratory evidence of neurologic involvement.

Divergences were encountered in three spinal fluids, all in patients with syphilis.

The first divergence represents the spinal fluid examination of a patient with an active syphilitic perforation of the nasal septum, whose blood Wassermann reaction and Kahn reaction were negative. The spinal fluid further revealed 4 cells, no increase in organic solids, and a negative gold curve.

TABLE 3.—*Results of Spinal Fluid Tests in the Diffuse Type of Involvement*

Number of Cases	Kahn Reaction	Wassermann Reaction Cholesterinized Antigen Icebox Fixation 18-Hour	1-Hour
Agreement:			
214	++++	++++	++++
8	++	++	++
68	—	—	—
Divergence:			
16	++++	++	++++
2	++++	±	++++
3	++++	—	++++
1	++++	—	—
6	++++	++	+
2	++++	±	±
2	+++	—	++++
1	+++	++	++++
1	+++	++	±
5	++	++	+
5	++	++	+
3	++	—	+
4	++	++	+
4	++	—	+
7	+	++	+
3	+	±	+
6	+	++	+
6	+	—	+
4	+	—	±
2	—	++++	++++
*6	—	++++	+
7	—	+	+
1	—	++++	—

* This number represents repeated examinations of spinal fluid from the same patient.

TABLE 4.—*Results of Spinal Fluid Tests in Miscellaneous Cases*

Number of Cases	Kahn Reaction	Wassermann Reaction Cholesterinized Antigen Icebox Fixation 18-Hour	1-Hour
Agreement:			
264	—	—	—
Divergence:			
1	—	—	++++
1	++++	—	++++
1	++	—	—

The second divergence represents a patient with a lung abscess and a latent syphilitic infection, without clinical evidence of involvement of the cerebrospinal axis. There was no increase in the cells or solids, and no change in the gold curve.

The third divergence was in the spinal fluid examination of a patient with active secondary syphilis and a history of recent cramplike pain in the legs and feet, which was worse at night. The spinal examination further revealed 14 cells, with some increase in organic solids, but a negative gold curve. As a transitory slight change in spinal fluid findings in this type of case is a common finding, it would appear that the Kahn test here uncovered an early involvement of the nervous system that the Wassermann tests had failed to detect. Unfortunately, a second spinal fluid examination has not been available in any of these three patients.

COMMENT

It is to be noted that the divergence in the results between the Kahn and either of the Wassermann tests occurred in a very small number of cases of general paresis, a larger number in tabes and a relatively higher percentage in the diffuse type of involvement. Attention should be called to the fact that these divergent results are limited largely to treated cases. Spinal fluid from well developed examples of neurosyphilis

in which there was no history of treatment gave four plus reactions with all methods in most cases.

A study of the tables would lead one to believe that treatment most easily influences serologic reactions in the diffuse type of involvement, less so in tabes dorsalis, and, as mentioned, has very little influence on serologic reactions in general paresis.

In addition to the 1,000 examinations summarized in the tables, there were eighteen in which the spinal fluids were anticomplementary in the Wassermann test but gave specific positive or negative reactions in the Kahn test. This is an important practical point in view of the difficulties that are frequently encountered in obtaining spinal fluids.

SUMMARY

A comparative study was made of the Kahn precipitation test and two separate Wassermann tests, based on 1,000 spinal fluid examinations. The cases included: 222 of general paresis, 124 of tabes dorsalis, 387 of the diffuse type of neurosyphilis, 250 cases of syphilis with apparently no neurologic involvement, and seventeen cases that showed central nervous system involvement of a nonsyphilitic nature. The results indicate that the Kahn precipitation test compares favorably in specificity and sensitiveness with the Wassermann test.

THE MECHANISM OF TOXIC ACTION OF ARSPHENAMIN ON THE HEART

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When arsphenamin was introduced by Ehrlich, it was stated that the drug was contraindicated if the patient's heart was diseased. Nevertheless, arsphenamin and the allied preparations of arsenic have been widely used in the treatment of patients with known heart disease. Although favorable results have often been achieved, there have been a sufficient number of cases in which untoward effects, often fatal, on the heart have occurred, so that today clinicians of wide experience are cautious in the administration of the newer preparations of arsenic to patients with heart disease. It is not my purpose to discuss the noncardiac toxic reactions of arsphenamin; I am concerned here with those instances in which there is a development of, or an increase in, the degree of heart failure, and especially with the sudden deaths after the injection of the drug, such as that reported by Stokes.[1]

The principal explanations given for the toxicity of arsphenamin or allied arsenicals on the heart are two: 1. The effect of shock. The condition of shock (caused by a local flare-up, the so-called Herxheimer reaction) sometimes following arsenical therapy is not well tolerated by the damaged heart. 2. Too rapid absorption of the syphilitic process in the heart and aorta: Instances of perforation of the aorta have occurred during a course of injections of arsphenamin.[2] As far as I am aware, neither of these explanations has been conclusively proved, nor are they applicable to all cases.

Stokes [1] also refers to the vasculotoxicity of arsenic. Oliver and Yamada [3] found that under certain conditions arsphenamin causes an agglutination of the red blood cells and may cause death by multiple emboli in the terminal capillaries. It is asserted,[4] however, that the agglutination of the red corpuscles of the blood may be inhibited by colloids such as exist in the blood serum.

It is obvious that additional light on this subject is desirable. Some work on the action of antimony and potassium tartrate (tartar emetic) [5] on the heart gave results which, if duplicated by arsphenamin, suggest an explanation of the toxicity of the latter on the heart. That these effects might be duplicated was assumed from the fact that the pharmacologists tell us that arsenic and antimony are very much alike in action.

ELECTROCARDIOGRAMS

Accordingly, it was decided to study the action of arsphenamin by means of electrocardiograms taken before and one hour after the injection of the drug. Eleven patients were so examined; seven received 0.3 gm. and the remaining four 0.4 gm.; the results differed but little in the two groups. A comparison of the electrocardiograms disclosed the following changes after arsphenamin:

There was a drop in the heart rate averaging 5.8 beats per minute.

The P wave was slightly blunter in five cases.

The P-R interval in two was decreased 0.01 second, and was lengthened 0.01 second in two and 0.4 second in one case, respectively.

The duration of the Q-R-S complex was lengthened by 0.01 second in four patients.

The maximum excursion of the Q-R-S complex, above and below the base line in lead 2, was increased by 0.2 millivolt in five patients, by 3 in one case, by 3.5 in another, and by 4 in still another; it was decreased by 0.5 tenth of a millivolt in a single patient, and unchanged in the remaining two cases.

The T wave in Lead 2 was sharper or increased in size in nine of the eleven patients. The height of the T wave was usually increased. Thus, in eight cases the T wave measured from 0.25 to 2.25 millivolt higher, making an average increase of 1.3 millivolt. In two cases there was no change and in one other there was a diminution of 0.3 millivolt. The spread of the T wave was greater in all; in five by 0.01, in three by 0.02, and in three by 0.03 second, respectively.

In seven cases the contour of the string shadow between the S and the T waves was slightly changed after the arsphenamin.

COMMENT

The first three of the changes in the electrocardiograms detailed above are best explained as due to stimulation of the vagus nerve, but the alterations in the Q-R-S complex and especially those in the T wave are of a different character. As discussed elsewhere,[5] they are evidence of alteration in conduction in the ventricular tissues.

It should be emphasized that the dosage of arsphenamin used in these patients is relatively small; it is probable that larger amounts of the drug would have increased the changes. The effects are similar to, but of lesser degree, than those I observed after the administration of antimony and potassium tartrate. With the latter drug, a larger dosage was employed.

1. Stokes, J. H.: M. Clin. N. Am. **5**: 492 (Sept.) 1921.
2. Since arsphenamin was the preparation of arsenic studied in this paper, its name will be used throughout, though the remarks may often be equally well applied to the allied arsenical drugs.
3. Oliver, Jean; and Yamada, S. S.: Causes of Early Arsphenamin Reactions, J. Pharmacol. & Exper. Therap. **19**: 393 (July) 1922.
4. Oliver, Jean; and Yamada, S. S.: Agglutination of Red Blood Cells by Arsphenamin, J. Pharmacol. & Exper. Therapy **19**: 187 (March) 1922.
5. Reid, W. D.: The Action of Tartar Emetic upon the Heart, to be published.

The significance of the aforementioned findings becomes clearer if one considers for a moment the nature of paroxysms of ectopic tachycardia arising in the ventricular tissues and of fibrillation, which I have discussed in another paper.[6] De Boer,[7] from studies of these arrhythmias, concludes that a bad metabolic condition of the heart favors fibrillation. He also states that essential factors in fibrillation are, as in Mines' theory, a decrease in the rate of conduction and in the duration of the refractory period, so that a circulating excitation (i. e., ventricular ectopic tachycardia or fibrillation) can be set up. According to Lewis,[8] vagal stimulation shortens the refractory period of the heart muscle.

Thus, it would appear that when arsphenamin is given to patients with heart disease there are present the three conditions, stated by De Boer and cited in the preceding paragraph, which predispose to ectopic ventricular tachycardia and fibrillation of the ventricles. The heart damaged by syphilis or some other pathologic agent may be said to be in a bad metabolic condition, and the effect of arsphenamin is that of decreasing the rate of conduction and of shortening the refractory period of the muscle, the latter action indirectly by way of stimulation of the vagal nerve endings.

If the dose of arsphenamin is small and the heart is not much damaged (and therefore its metabolic condition is less unfavorable), there should be less danger of a cardiac upset. As far as I am aware, there is no effect of bismuth subnitrate on the heart, and, since this drug recently has found some favor as a substitute for arsphenamin,[9] it is possible that it might be employed with greater safety in the treatment of syphilis in patients in whom it is known that the heart is considerably damaged. A study directed toward the discovery of any effects of bismuth on the heart would be desirable.

The effects of arsphenamin may well be more marked when administered to patients with hearts known to be damaged, and in larger dosage than was employed in this study. It is my hope that this report will stimulate some one to investigate these points.

SUMMARY AND CONCLUSIONS

The exact nature of the toxic effects of arsphenamin on the heart, observed in some cases under treatment for syphilis, is unknown.

An electrocardiographic study of the action of arsphenamin on eleven patients disclosed changes consistent with a prolongation of the conduction period and a shortening of the refractory phase.

When the heart is diseased, either by syphilis or by other cardiac disease, it may be said to be in a bad metabolic condition.

A prolongation of the conduction period and a shortening of the refractory phase in a heart whose metabolic condition is bad, predisposes, according to De Boer,[7] to the onset of ventricular tachycardia and ventricular fibrillation. The former of these arrhythmias is serious and the latter fatal.

It is suggested that when arsphenamin is administered to patients with heart disease, the three conditions postulated by De Boer may be fulfilled and lead to the occurrence of serious arrhythmias; i. e., ectopic tachycardia and fibrillation of the ventricles.

If the aforementioned conception is correct, it supports the advice of many clinicians to employ small doses or withhold arsphenamin in the treatment of patients with heart disease and syphilis.

Bismuth subnitrate should be considered as a substitute for arsphenamin in the treatment of syphilitic patients with heart disease.

491 Commonwealth Avenue.

6. Reid, W. D.: Ventricular Fibrillation Following Ectopic Ventricular Tachycardia, Boston M. & S. J. **190**: 686 (April 24) 1924.
7. De Boer, S.: On Recurring Extrasystoles and Their Relation to Fibrillation, J. Physiol. **54**: 410 (March) 1921.
8. Lewis, Thomas: The Mechanism and Graphic Registration of the Heart Beat, New York, Paul B. Hoeber, 1920, p. 150.
9. The use of mercury should not be forgotten.

CHICAGO PNEUMONIA COMMISSION

PRELIMINARY REPORT *

HERMAN N. BUNDESEN, M.D.
Chairman
CHICAGO

The acute respiratory diseases cause more deaths than all the other infectious diseases combined. This statement is based on tabulations in which pneumonia, all forms, acute bronchitis and influenza are classed as acute respiratory diseases, and the other infectious diseases include, besides tuberculosis, all major infectious diseases except the venereal disease group and its consequences.

PREVALENCE OF PNEUMONIA

During the last twenty years there occurred, in Chicago, 110,903 deaths from the acute respiratory diseases, as compared with 99,096 deaths from the aforesaid other infectious diseases. The number of deaths occurring during the five year intervals of this period is as shown in Table 1. In the latter half of this period, the deaths from acute respiratory diseases exceeded those from other infectious diseases by 64.2 per cent., or, in other words, constituted three fifths of all deaths from the acute infectious diseases.

TABLE 1.—*Deaths from the Acute Respiratory Diseases Compared with Deaths from Other Infectious Diseases, in Chicago, Numbered by Five Year Periods, 1905-1924*

	Acute Respiratory Diseases*	Other Infectious Diseases†
1905-1909	23,641	27,932
1910-1914	25,511	28,819
1915-1919	34,567	25,799
1920-1924	27,184	16,546
Total	110,903	99,096

* Includes pneumonia, all forms, influenza and acute bronchitis.
† Includes typhoid fever, smallpox, tuberculosis, diphtheria, scarlet fever, measles and whooping cough.

In Chart 1 are shown the death rates from the acute respiratory diseases and from all other major infectious diseases combined, for the cities of New York, Chicago, Philadelphia and Pittsburgh, for the years 1904-1924.

In these cities, the death rates from acute respiratory diseases show a similar trend. Since 1917, they exceeded those from the other infectious diseases combined.

The acute respiratory diseases are responsible for approximately 15 per cent. of the deaths from all causes. The percentage of deaths from acute respiratory diseases in the registration area during the years 1913 to

* The members of the commission include: Dr. Herman N. Bundesen, chairman; Dr. C. C. Pierce, United States Public Health Service; Dr. Isaac D. Rawlings, director of public health of the state of Illinois; Dr. W. A. Evans, health editor of the Chicago Tribune; Dr. Edwin O. Jordan of the University of Chicago; Dr. J. C. Geiger, assistant commissioner of health of Chicago, and Dr. G. Koehler, assistant commissioner of health of Chicago, secretary.

1922 is shown in Chart 2. The average annual percentage of acute respiratory disease deaths for the ten year period is 14.58.

With the years 1918, 1919 and 1920, during which influenza was unusually prevalent, eliminated, the average annual percentage of acute respiratory disease deaths of all deaths occurring in the remaining seven years is 11.32.

In the large cities, pneumonia is proportionately more prevalent than in the registration area as a whole. In

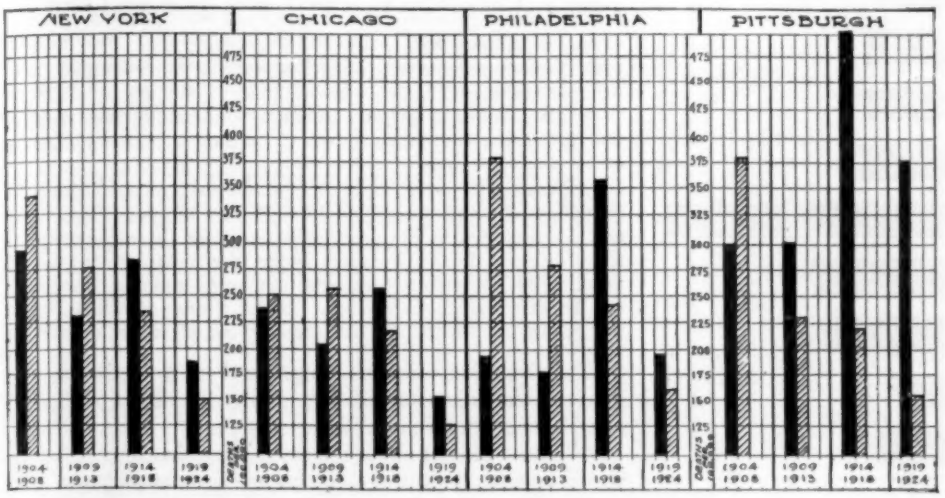

Chart 1.—Death rates per hundred thousand, 1904-1922: solid columns, acute respiratory diseases; shaded columns, six other major infectious diseases combined.

Chart 3 are shown the acute respiratory disease death rates per hundred thousand of population in all cities over 500,000 population combined, and also the rates for Chicago and Pittsburgh.

As a cause of death in children under 5 years of age, the acute respiratory infections now outrank the diarrheal diseases. The trend of these diseases in Chicago from 1905 to date is shown in Table 2, and graphically illustrated in Chart 4.

In 1918 the two death rates cross, the diarrheal diseases continuing a rapid downward course, while the acute respiratory death rate remains stationary.

CHICAGO PNEUMONIA COMMISSION

The great prevalence of the acute respiratory diseases and the fact that these diseases are responsible for more deaths than all the other infectious diseases combined led Dr. Herman N. Bundesen, commissioner of health of Chicago, Oct. 1, 1924, to appoint a commission to make a study and survey of the prevalence and causes of these diseases, and to recommend measures for their control and suppression.

OBJECTIVES OF THE COMMISSION

The objectives of the commission are to recommend laws and to make rules and regulations to be adopted by the Department of Health of the State of Illinois and the Department of Health of the City of Chicago for the control and prevention of the acute respiratory diseases.

The following are among the remedial measures that the commission has under consideration, in regard to which it is hoped that final recommendations will be made early this year:

General plan for the control of pneumonia and pneumococcus carriers, based on bacteriologic research and the observations made in the epidemiology of meningitis and similar infections.

Control of convalescent carriers.

The use of vaccination in the prevention of colds and pneumonia.

The prevention and treatment of colds and their relation to pneumonia.

Control and prevention of pneumonia in children under 5 years of age.

The use of irradiation and cod liver oil in the treatment of rickets and the prevention of pneumonia in children.

Prevention of pneumonia in the acute infectious diseases, especially measles and whooping cough.

Hospitalization of pneumonia cases.

The effects of crowding and the prevention of pneumonia in lodging houses.

Methods of treatment.

Relation of pneumonia to dust infection and infiltration of the lungs and the prevention of pneumonia in these cases.

It may be noted that the foregoing relate almost entirely to measures directed at the individual. It was early recognized by the commission that the environment played an important rôle in the etiology of the acute respiratory diseases. A study of these environmental conditions, however, was found to be a task that would consume more time than the commission was able to devote to this inquiry.

TABLE 2.—*Acute Respiratory Diseases Compared with Diarrheal Diseases: Deaths Under 5 Years in Chicago, 1905-1924: Rates per Hundred Thousand Population Under 5 Years*

Year	Respiratory		Diarrheal		Population Under 5 Yrs., 10.1% of Total
	Number	Rate	Number	Rate	
1905	2,106	1,069.8	2,296	1,166.6	196,860
1906	2,026	1,003.7	2,384	1,181.1	201,838
1907	2,236	1,081.1	2,583	1,248.9	206,816
1908	2,064	974.5	3,206	1,513.7	211,794
1909	2,208	1,018.5	3,257	1,502.5	216,772
1910	2,345*	1,057.1	3,643*	1,642.3	221,820
1911	1,804*	833.7	3,005*	1,302.3	227,185
1912	2,395	1,030.1	3,213	1,381.9	232,496
1913	2,404	1,010.9	3,404	1,431.4	237,804
1914	2,095	860.4	3,198	1,312.5	243,491
1915	1,751	703.5	2,800	1,125.0	248,883
1916	1,670	656.8	3,636	1,430.1	254,234
1917	2,349	905.0	3,075	1,184.7	259,545
1918	3,340	1,261.1	3,226	1,218.0	264,856
1919	1,832	678.1	2,721	1,007.1	270,167
1920	1,961	711.7	2,348	852.2	275,530
1921	1,672	595.3	1,883	670.5	280,846
1922	1,743	609.1	1,319	460.9	286,162
1923	1,716	588.6	1,161	398.2	291,548
1924	1,313	442.2	935	314.9	296,900

* According to the U. S. Census.

Fortunately, it was found that an intensive study was being made in Pittsburgh under the direction of Dr. Carey J. Vaux, commissioner of health, in cooperation with the Mellon Institute, of air pollution in that city. Knowing that the pneumonia problem in Pittsburgh was being given active consideration by the commissioner of health of that city, the Chicago commission sent a committee consisting of Drs. Bundesen, Evans and Koehler to call on Dr. Vaux, with the result that

an agreement was made whereby the Pittsburgh Department of Health would broaden its pneumonia studies and devote especial attention to an investigation of the environmental factors, such studies to be made

YEAR	DEATHS*	DEATH RATE PER 100,000	PERCENTAGE RATIO ACUTE RESPIR. TO ALL CAUSES
1913	†890,848 • 98,105	†1407.4 • 154.9	
1914	†898,059 • 96,214	†1360.9 • 145.7	
1915	†909,155 • 106,599	†1350.2 • 158.4	
1916	†1,001,921 • 123,920	†1404.4 • 173.8	
1917	†1,068,932 • 133,093	†1425.8 • 177.5	
1918	†1,474,841 • 486,659	†1812.5 • 598.0	
1919	†1,096,436 • 195,735	†1287.7 • 229.9	
1920	†1,142,558 • 189,010	†1306.0 • 216.2	
1921	†1,032,089 • 90,540	†1163.9 • 102.1	
1922	†1,101,863 • 126,766	†1181.7 • 135.9	

* INCLUDE: ACUTE BRONCHITIS, CAPILLARY BRONCHITIS, BRONCHOPNEUMONIA, LOBAR PNEUMONIA, PNEUMONIA NOT DEFINED AND INFLUENZA.

† INCLUDES ALL CAUSES

Chart 2.—Deaths from acute respiratory diseases, and death rates, per hundred thousand of population, in the registration area; per cent. of total deaths.

by the Mellon Institute, the Bureau of Mines, the University of Pittsburgh School of Medicine and other local agencies, cooperating with the Pittsburgh Department of Health.

By this joint arrangement, the ultimate findings of the commission will include studies of the individual and recommendations of remedial measures based on this study as made by the Chicago commission; also an investigation of environmental factors and measures recommended for their control as made by the Pittsburgh group.

METHODS OF INVESTIGATION

With a view to determining the principal etiologic facts in regard to the cases and deaths of acute respiratory diseases, the Department of Health of Chicago has, since Oct. 1, 1923, with the assistance of Dr. W. A. Evans, made a special study of the data contained in the death certificates covering deaths from these diseases, occurring from Oct. 1, 1923, to Sept. 30, 1924, and has also made a field investigation of 6,600 cases of pneumonia reported to the department during the first nine months of 1924.

STUDY OF DEATHS

The study made by the department of health of the death certificates received showing acute respiratory disease as a cause of death had as its object the exclusion from the list of the acute respiratory diseases of all cases in which such acute infection was obviously not the cause of death.

All death certificates giving any of the following diseases as a cause of death were gone over carefully:

A. Lobar pneumonia.

B. Bronchopneumonia, including capillary bronchitis.

C. Acute bronchitis.

D. Miscellaneous group, including pneumonia not defined, and influenza, excluding, however, influenza with localization other than pulmonary.

E. Pneumonia as a cause or contributing cause of death in measles and whooping cough. These were tabulated separately and not included in the general statistics of the acute respiratory disease deaths because under the rules of statistical practice such deaths are classed, not as pneumonia, but under the primary infectious diseases, in the course of which, or as the result of which, the respiratory complication developed.

The first four classes were used as a basis for the general classification of the acute respiratory disease deaths by anatomic or clinical classes.

All the etiologic data shown on the death certificates were tabulated for these classes separately, and the results show that an anatomic classification of the acute respiratory diseases does not disclose anything of significance from the public health standpoint, except the fact that bronchopneumonia is more prevalent in the age period under 5 years, while lobar pneumonia is more commonly the cause of death in persons over 50 years of age. The relative death rates at these two age periods was found to be as given in Table 3.

In general, the following classes of cases were excluded from the tabulation, because it seemed that

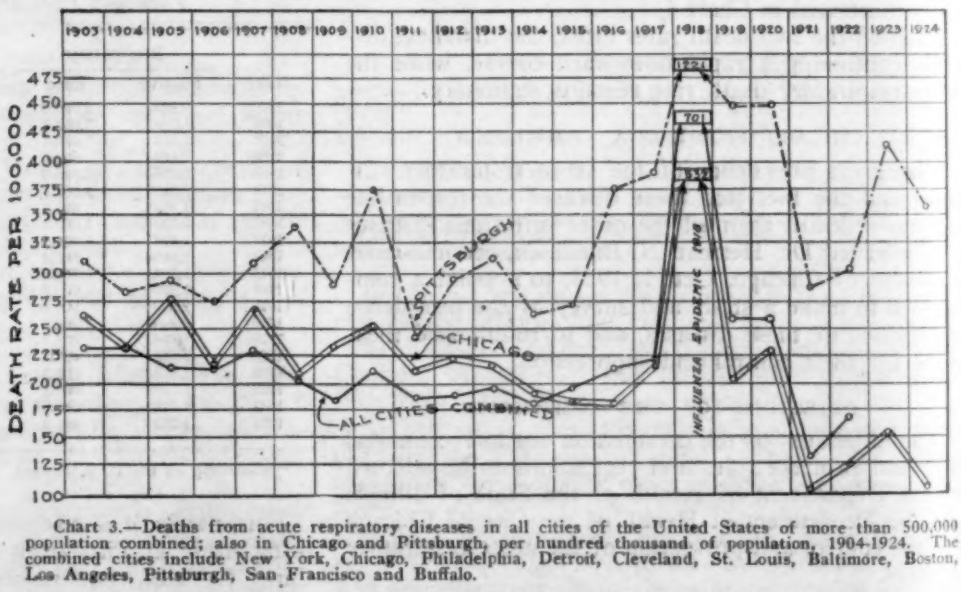

Chart 3.—Deaths from acute respiratory diseases in all cities of the United States of more than 500,000 population combined; also in Chicago and Pittsburgh, per hundred thousand of population, 1904-1924. The combined cities include New York, Chicago, Philadelphia, Detroit, Cleveland, St. Louis, Baltimore, Boston, Los Angeles, Pittsburgh, San Francisco and Buffalo.

they did not represent an acute infection of the respiratory tract:

1. Deaths of infants 3 days and less of age, even though the cause of death was given as acute respiratory disease. The reason for this decision was the great uncertainty as to

the cause of death at this age period. As a matter of fact, only six death certificates were thrown out as coming within this group.

2. All cases of pneumonia lasting more than three weeks, on the theory that some infection other than the pneumococcus or pus cocci is usually responsible for what is reported as a death from pneumonia occurring after prolonged illness.

3. Bronchopneumonia and bronchitis lasting more than six weeks, on account of the possibility of these cases being tuberculosis instead of an acute respiratory disease. For the same reason, lung abscesses were excluded after four weeks, and empyema after six weeks.

4. All chronic infections, as well as all chronic bronchitis and asthma. All cases of heart and kidney disease in which lung infections were of minor importance were excluded, on account of the infection in these cases being secondary to passive congestion and hypostatic conditions.

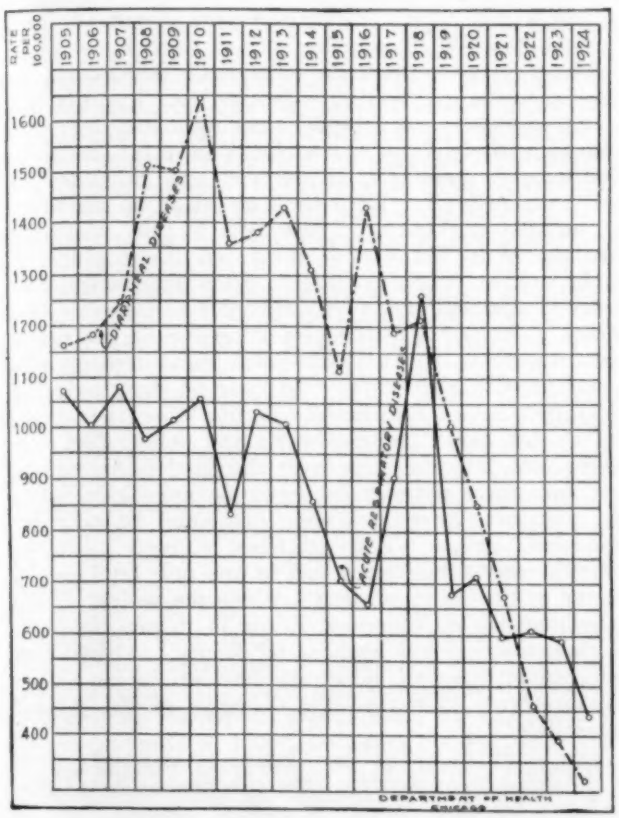

Chart 4.—Deaths under 5 years from acute respiratory diseases, compared with diarrheal diseases, in Chicago; rate per hundred thousand of population under 5 years; the population under 5 years is 10.1 per cent. of the total.

Between Oct. 1, 1923, and Sept. 30, 1924, there were 3,223 deaths from acute respiratory diseases reported to the department. After a study and analysis of the death certificates, it was found that 258 could not be classified as acute infections under the foregoing rules, thus leaving 2,965 included in the study, the results of which will be presented in the later reports of the commission.

STUDY OF CASES

The study of the pneumonia cases is based on the data collected by a special corps of investigators who were assigned to call on all cases of pneumonia reported to the health department during the first nine months of 1924. A special blank was used for this investigation, which contained some eighty questions, the majority of which have a special bearing on the etiology or possible cause of the disease. The matter of previous illness, acute colds and other infections of the nose and throat were covered in detail. The exposure and environmental conditions in the home and workshop prior to onset of the disease were also covered.

A sputum specimen was obtained from 750 of the 6,600 cases investigated, and typed in the laboratories of the department of health. The results of this typing are given in Table 4.

TABLE 3.—*Relative Death Rates from Bronchopneumonia and Lobar Pneumonia, Under 5 and Over 50*

	Under 5 Years	Over 50 Years
Bronchopneumonia	23.8	3.85
Lobar pneumonia	7.6	14.58

In all instances in which multiple cases of pneumonia were reported in one family a special investigation was made, including a comprehensive sanitary survey of the living quarters and examination of the air, and, in a large percentage of cases, a determination of the carbon monoxid content. The results of the data obtained from the investigation of the cases were tabulated under the various bacteriologic types, and the cases not typed are included in the total for all cases investigated.

TABLE 4.—*Results of Typing Sputum*

	Number	Per Cent.
Type I	92	12.26
Type II	82	10.93
Type III	140	18.67
Group IV	364	48.53
Streptococcus	72	9.61
	750	

The cases were also tabulated with regard to the date of onset. Graphs are being prepared showing the relationship of the meteorological conditions to the number of cases occurring each day.

In connection with this study of the cases and deaths, a comprehensive survey has been made of the literature relating to the various etiologic factors and remedial measures under consideration by the commission. This will be considered in connection with each one of the subjects on which the commission will make reports within the next year.

Value of Uncooked Foods.—Then, as to cooking. A considerable economy could be obtained in this direction if more uncooked food were eaten, such as salads, fruit, nuts and cheese, and if those foods which must be cooked were cooked for a shorter time. Vegetables and meat are generally cooked to death, so far as their vital elements are concerned. Civilized man is losing the taste for natural flavors, and demands that his palate be tickled by various artificial flavors and condiments. These are not only expensive, but harmful. Not only are they irritants to the gastro-intestinal mucosa, but they lead to overeating, for which they are largely responsible. Excessive cooking softens food to an extent which leaves little or nothing to be done in the way of mastication; and, unless sufficient uncooked food is eaten, an inadequate demand is made on the teeth and jaws. As a consequence we have dental caries, maldevelopment of the palate and lower jaw, adenoids and the impaired digestion of food. This applies more particularly to children, and, indeed, our chief anxiety and concern in the whole question of dietary lies with the growing child. The seeds of future gastro-intestinal disease are sown in early childhood; rickets and the whole crop of toxemic manifestations are the harvest.—Belfrage: *Practitioner* **114**:79 (Jan.) 1925.

NONENGAGEMENT OF VERTEX IN PRIMIPARAS AT ONSET OF LABOR

DOES IT INDICATE DISPROPORTION OR DIFFICULT LABOR? *

WILLIAM H. CARY, M.D.
AND
JOHN CASAGRANDE, M.D.
BROOKLYN

A review of 610 cases of primiparous labors in the obstetric service at the Brooklyn Hospital in the last fifteen months, and an intensive study of sixty-one cases in which the vertex was not engaged at the onset of labor, demonstrates that:

1. Failure of vertex engagement cannot be accepted as an indication of disproportion without other direct confirmatory evidence.

2. Persistence of nonengagement after a few hours of labor does not constitute such confirmatory evidence, nor is a so-called "test of labor" significant as demonstrating the feasibility of vaginal delivery. Our study further affirms that, in managing such cases, instead of avoiding vaginal examinations in anticipation of abdominal delivery, a thorough vaginal examination under an anesthetic should be made, at which time the ability of the pelvis to accommodate the infant may be determined and all adjuvant conditions that should govern the management may be studied.

3. Nonengagement per se should not be interpreted as indicating unusual difficulties in accomplishing vaginal delivery.

Our experience with residents and interns from representative schools and hospitals has impressed us that the importance of nonengagement in the primipara at term, as indicating serious obstacles to vaginal delivery, is very generally taught, and almost without exception these graduates come to us with the universal formula that nonengagement of the presenting part means disproportion, and disproportion with nonengagement in the primipara calls for cesarean section. Most physicians were similarly taught, and in varying periods in their obstetric careers have felt that vaginal delivery, if it was to be accomplished at all in these patients, was menaced with the prospects of disaster. We have had hours of anxiety in the past concerning patients with such findings, but in recent years we are not necessarily disturbed if nonengagement persists after some hours of labor. Our conversion occurred because we noted again and again in the experience of years that no greater difficulty was experienced in delivering this class of patient than when descent of the head had occurred prior to labor. The conclusions were finally irresistible, that nonengagement in the primipara meant simply and solely that: (1) the ability of the fetal head to pass the inlet was not yet demonstrated; (2) because disproportion might be the cause, early competent review of the patient should be carried out pertinent to the nonengagement, and (3) disproportion was much the least frequent of the many causes delaying engagement.

As to the percentage of primiparas who go into labor before engagement occurs, we noted 100 such cases, or 16 per cent. of the 610 histories reviewed. This percentage would naturally be considered too low, for many patients enter the hospital some time after labor has begun, engagement possibly occurring in the interim. As opposed to error in that direction, however, we, in the interest of scientific accuracy, elected to reject any case in which the history was not absolutely convincing and all items unanimous as to nonengagement. We were forced to omit thirty-nine such cases, reducing the series to sixty-one cases. We can safely state, therefore, that at least 10 per cent. of primiparas fall into labor without the vertex being engaged.

While clinical impressions may be as accurate and as acceptable to many as statistics, we thought it might prove of some value to analyze in detail the labor histories of the sixty-one cases in this series. These cases were itemized as follows: (*a*) age of patient; (*b*) findings on examination after onset of labor; (*c*) hours patient was in labor; (*d*) management of delivery, and (*e*) results; that is, convalescence of mother and baby.

These items proved of impressive importance as relating to the question of disproportion. In every one of the sixty-one cases, engagement ultimately occurred and vaginal delivery was effected in every instance. Recourse to axis traction forceps was necessary in only one instance. There was no maternal mortality or serious morbidity. There was a fetal mortality attributable to delivery of three, or 5 per cent., all being due to cranial injuries. Such physiologic evidence of the negligible part disproportion played in this series is further sustained by a review of the pelvic measurements. Reduction in pelvic measurements was noted in only eight cases. In four of these only the pelvic outlet was contracted. In the other four cases, or 6.6 per cent., contraction of the pelvic inlet was diagnosed. Two of these were classified as flat pelves, and both these patients delivered spontaneously, while the remaining two cases were diagnosed as generally contracted pelves. Both of these patients sustained difficult forceps deliveries, and in one case fatal cranial injury to the baby occurred. While the weight of the baby may be an important factor in disproportion, it is almost a hopeless element to discuss, as there can be no stated weight at which we may assume the cranial measurements to exceed the diameter of the normal pelvic inlet.

The study of the relation borne by nonengagement to the question of difficult labor also proved most interesting. In this series, seventeen patients, or 28 per cent., delivered spontaneously. If we add to these seventeen patients, twenty-three others in whom forceps were applied at the perineum stage, we have a total of forty, 66 per cent., who had practically uncomplicated deliveries. The average length of labor in the sixty-one cases averaged twenty-four hours. This will not seem unduly long, we believe, when it is explained that we have computed hours in labor counting from the hour when the patient had the first pain, as reported by herself.

MECHANISM OF ENGAGEMENT

If disproportion plays such a small part in failure of engagement in primiparas, what then are the mechanical factors that prevent engagement in this minority of primiparas? To answer this question, a brief consideration of the mechanics of engagement is necessary. Obviously, the original position of the uterus in the pelvis is such that as the cavity of the uterus increases to accommodate the fetus, even with the lower uterine segment flattening, the vertex lies above the level of the brim. From an early date the

* Read before the Brooklyn Gynecological Society.

force of gravity favors descent of the uterus with its contents. This is opposed successfully by the resistance of soft parts and ligaments. As the uterus rises in the abdomen, its progress is opposed by lateral and perpendicular pressure, which supplements the force of gravity; and finally when these forces become sufficient to cause the patient considerable discomfort, the uterus and its contents move in the direction of least resistance, which is into the pelvic cavity, and engagement occurs.

CAUSES OF NONENGAGEMENT

In general, any condition that increases resistance to descent or diminishes the lateral and downward pressure on the uterus may delay or prevent engagement until the expulsive muscular efforts of the second stage of labor.

One of the simplest forms of mechanical resistance to descent is exemplified in certain types of the modern maternity corsets. Such patients resort to the use of these corsets early, and they may be so well fitted and so snug and perfect in their support of the abdomen that they more than balance the pressure from above. In a certain number of patients, a small percentage, indeed, the discontinuance of such a corset for a few days prior to confinement will result in engagement in a very brief period.

Another class of primiparas in whom engagement does not occur because of mechanical conditions of the most innocent nature are those patients whom we term the "multiparous type." This term well describes these patients with ample pelves, broad, roomy abdomens, and flaccid abdominal muscles. Although these patients may be in labor several hours without descent of the presenting part, the trained obstetrician will not be deceived, for, with dilatation completed and membranes ruptured the vertex rapidly descends into the pelvic cavity, the progress of labor being also like that of multiparas.

The effect of hydramnion on engagement and the first stage of labor is generally understood. Of much more difficult explanation, however, is a class of primiparous patients with increased, though hardly abnormal, amounts of liquor amnii, who, on examination, after some hours of labor, present a floating head with a large amount of forewaters protruding through a cervix usually about half dilated. Though labor pains of severe quality continue regularly with marked tension in the amniotic sac, rupture of the forewaters does not occur, though it seems imminent hour after hour, and dilatation does not increase. With a large baby or a scant pelvis, such cases are most worrisome. If one were to rely on nonengagement and a test of a few hours of labor to decide in these cases as to the method of delivery, many unnecessary cesarean sections would result. If the accoucheur convinces himself by careful examination, if necessary with the patient under anesthesia, that no marked contracture of the pelvic inlet is present, the membranes should be ruptured with assurance, even though dilatation is not completed, for engagement usually occurs promptly, dilatation progresses, and the patient goes on to successful delivery. (It is this type of patient that has occasionally humiliated the attendant by rupturing the membranes and delivering the child while preparations for abdominal delivery were in progress.) Such cases have doubtless been observed by all obstetricians; and while it is not easy to classify these patients, because of the uncertainty of the nature of the mechanical factor involved, they form a very definite and fairly large group that may easily betray one into unnecessary abdominal deliveries.

OCCIPUT POSTERIOR POSITIONS

We now wish to consider what we feel is the most important group of cases in our series; that is, those in which there is nonengagement, owing to abnormal positions of the vertex. It happens in this series that this includes only posterior positions. There were seventeen posterior position cases, a total of 28 per cent. It was in this group that the more difficult labors occurred and two of the three fetal deaths took place. Posterior position is probably the most frequent cause of nonengagement. There is no type of case that requires keener study or better obstetric judgment for proper management than a primipara with a posterior position, a slow, unsatisfactory first stage, with delayed engagement and dilatation, and comparatively early rupture of the membrances. A large number of these patients develop retraction ring dystocia. It is in this class of patients that we have found much comfort in the rotary version of Pomeroy, for thereafter the head usually engages in an anterior position, offering a much more simple obstetric problem.

In these cases many hours of labor under narcosis may occur before the head engages; some then rotate spontaneously and are easily managed. Even in difficult cases vaginal delivery is elected, for we feel that the patient is entitled to the test of one delivery. In an elderly primipara, in whom future pregnancies are not likely, the complications enumerated above will occasionally indicate abdominal section.

TEST OF LABOR

From the foregoing discussion it will appear why we place little credence or significance in the so-called test of labor as indicative of the importance nonengagement bears to the problem of delivery. The first hours of labor are involved in the mechanics of dilatation and retraction, and descent is not a phenomenon of this stage of labor.

SUMMARY AND CONCLUSIONS

1. From a series of 610 primiparous labors reviewed, there were 10 per cent. in which the vertex was not engaged at the onset of labor. For reasons appearing in the text, this percentage is doubtless too small.

2. A careful analysis of these sixty-one cases elicits the fact that engagement ultimately occurred in every instance, and vaginal delivery was affected in every case without maternal mortality or serious morbidity, and with a fetal mortality of 5 per cent., therefore, no instance of absolute disproportion occurred in this series.

3. Simple, uncomplicated deliveries occurred in 66 per cent. of the cases.

4. A study of the causes which prevent engagement would indicate that the occiput posterior position is a frequent and important factor in explaining a large percentage of these cases, and it is in this group that the most difficult labors were encountered and two of the fetal mortalities occurred.

5. The so-called test of labor would hardly seem, in this class of cases, to be important, and it is not to be accepted as synonymous with a test of engagement of the presenting part. If the possibility of engagement is in doubt, it should be determined by careful examination with the patient anesthetized.

36 Pierrepont Street.

Clinical Notes, Suggestions, and New Instruments

A CASE OF RAT-BITE FEVER

P. W. MONROE, M.D., AND HERMAN MOOSER, M.D.,
CITY OF MEXICO

Human infection with *Spirochaeta morsus-muris*, an infection endemic in rats in many parts of the world, is uncommon, and the opportunity to recognize it and to administer specific therapy early in its course occurs rarely. A brief summary of the literature concerning the disease in the United States and the report of a case in Boston were recently published.[1]

During the last two years, experimental studies with guinea-pigs and rabbits infected with *Spirochaeta morsus-muris* obtained from a wild rat have been carried on in the laboratory of the American Hospital in Mexico City. A partial report on the work has been published.[2] It was an interesting coincidence that a case of human infection should have presented itself while these studies were still in progress.

REPORT OF CASE

History.—G. H., a boy, aged 11 years, of English parents, was admitted to the American Hospital, November 3, for the treatment of a sore on the leg, and fever. The history was unimportant except as it related to the present illness. Fifteen days before admission, the boy found a rat in his room, and while trying to kill it was bitten on the calf of the left leg. The small puncture wound caused no trouble until eleven days after the injury, when a tender swelling began to appear around the wound. He had fever, and the swelling and pain increased until he was unable to walk or to extend the leg.

The patient was fairly well nourished, weighed 65 pounds (29.5 kg.), and looked rather ill. A dry, rough skin (its usual condition, according to the father) showed no rash. The left femoral and inguinal lymph nodes were quite swollen and tender. The lymph nodes of the right groin, of the axillae and of both epitrochlears were slightly enlarged. The leg was held semiflexed. There was slight edema above the ankle, and on the inner side of the calf, there was a tender, slightly reddened, indurated swelling 4 cm. in diameter, with its margins ill defined. The center of this area for 1 cm. across was necrotic, and presented a small bleb. The skin adjacent to the necrosis was firmly indurated. The pulse was 100, the temperature 102 F. The urine showed a trace of albumin and casts. Blood examination revealed: leukocytes, 13,890; polymorphonuclears, 81.28; lymphocytes, 10; mononuclears, 8; basophils, 0.52, and eosinophils, 0.18. The Wassermann reaction was negative. With a Hagedorn needle, a puncture was made in the indurated tissue bordering the necrosis. After the bleeding had stopped, nearly clear serum was expressed from this wound. In the dark field, the rapidly moving spirochetes with their large bipolar flagella were readily demonstrated, three or four to the field. In blood taken from a finger, they could not be found. Two guinea-pigs were inoculated in the scrotum with 0.15 and 0.05 c.c., respectively, of the serum obtained from the lesion on the leg.

November 4, the morning temperature was 100.2. From a cubital vein, 6 c.c. of blood was withdrawn, and through the same needle, 0.3 gm. of neo-arsphenamin was injected. No spirochetes could be found in the blood. It was citrated and injected into the peritoneal cavity of two guinea-pigs, 3 c.c. in each. The boy's afternoon temperature was 103.4.

November 5, the morning temperature was normal, rising to 103.4 in the afternoon. The boy could extend the leg, and the glands in the left groin were somewhat less swollen and tender. The blood count was: leukocytes, 15,700, with 74 per cent. polymorphonuclears and 17.5 per cent. lymphocytes. No spirochetes could be found in the serum from the wound. A guinea-pig was inoculated with serum taken at this time, and another animal was injected intraperitoneally with 4 c.c. of blood from a vein.

November 6, there was further improvement in all symptoms. The temperature remained normal.

November 8, the boy looked and felt well. The leg presented a small ulcer 1 cm. in diameter, covered with a black crust, and having sharply defined indurated edges. The surrounding inflammation had disappeared, and the glands in the groin were much reduced and not tender. A second injection of 0.3 gm. of neo-arsphenamin was given.

November 9, the boy was discharged, but told to return for further injection.

November 12, he had remained well. The ulcer was smaller, and its margins were less indurated. The glands were palpable, but small. A third injection of 0.3 gm. of neo-arsphenamin was given.

January 6, the boy had remained well. The ulcer had been healed for several weeks.

Results of Animal Inoculations.—The two animals inoculated on the scrotum with serum obtained from the wound on the day of admission showed inflammation and edema of the injected part on the fifth and seventh day, respectively, and the spirochetes were found in serum expressed from the parts. They were found in the peripheral blood on the eleventh and twelfth days. Both died on the nineteenth day. The animals injected with the venous blood, taken on the day of admission, revealed the spirochetes in their peripheral blood on the fifteenth day, and they died in twenty-six and twenty-nine days after injection. All four of these animals showed marked enlargement of the inguinal lymph nodes, and spirochetes were demonstrated in the nodes by Levaditi's method. A guinea-pig, inoculated on the scrotum with serum taken from the wound twenty-four hours after the first injection of neo-arsphenamin, developed a lesion in nine days, but another animal injected with the blood taken at that time remained well.

COMMENT

Two other cases of probable rat-bite fever have come to our knowledge during the last two years. Both of them were in children who had persistent sores of the hands following rat bites, a general lymphatic enlargement, prolonged and relapsing fever, and maculopapular eruptions. One child was in bed from the middle of September to the last of November, and after being up for three weeks, suffered a severe relapse. A diagnosis of rat-bite fever was suggested in this case, but blood examination or arsphenamin therapy was not permitted. Injections of sodium cacodylate were finally given, and this patient slowly recovered. The other child was in bed for the greater part of a year. She was then taken to Spain, and we do not know the outcome.

CONCLUSION

An early diagnosis may be made, tentatively, by the history and characteristic sore, positively, by demonstration with the dark field of the spirochetes in serum from the chancre, or by animal inoculation. The organisms may be found in the lesion of inoculation as early as five days thereafter, and in the blood in eleven days. The disease untreated is a long and serious one, but it is promptly cured by arsphenamin therapy.

Calle de Gante 1.

1. Shattuck, G. C., and Theiler, Max: Rat-Bite Disease in the United States with Report of a Case, Am. J. Trop. Med. **4**: 453 (Sept.) 1924.
2. Mooser, H.: Experimental Studies with a Spiral Organism Found in a Wild Rat, J. Exper. Med. **39**: 589 (April) 1924.

A DILUTING FLUID FOR PLATELET COUNTING*

CHAUNCEY D. LEAKE, PH.D., AND EMMETT F. GUY, M.S.,
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The great number of methods proposed for platelet counting indicates no universal satisfaction with any one. As a result of careful studies on the various technics suggested, we were led to adopt that introduced by Kemp, Calhoun and Harris,[1] with the exception that we found another diluting fluid much more satisfactory than the one used by them. Indeed, no other diluting fluid has given us as consistently good service as the one we were led to formulate.

* From the Pharmacological Laboratory of the University of Wisconsin.
* Aided by a grant from the University of Wisconsin Research Committee.

1. Kemp, G. T.; Calhoun, Henrietta; and Harris, C. E.: The Blood Plates: Their Enumeration in Physiology and Pathology, J. A. M. A. **46**: 1022 (April 7), 1091 (April 14) 1906.

The anticoagulant used in most diluting fluids for platelet counting is sodium citrate. In order to obtain an isotonic solution with this salt, such quantities must be used that the specific gravity of the fluid becomes relatively high, with the result that the platelets take a long time to settle on the counting chamber. In addition, sodium citrate does not satisfactorily prevent the platelets from clumping. It was observed long ago that sodium oxalate is a more efficient anticoagulant than sodium citrate, and also that it is better in preventing platelet clumping.

The diluting fluid that we have used with very consistent satisfaction is composed of: distilled water, 94 c.c.; solution of formaldehyd, U. S. P., 6 c.c.; sodium oxalate, 1.6 gm.; crystal violet, 0.01 gm. This mixture is warmed, filtered, and kept in stoppered bottles. It does not deteriorate on standing, nor does any sediment form. Its specific gravity is 1.020. The platelets are morphologically distinct and remain intact in this fluid, and only very rarely does clumping occur. When clumping does take place, it seems to be due to the fact that the blood and fluid mixture in the watch glass has not been thoroughly stirred. This fluid stains the leukocytes in a characteristic manner, and preserves the erythrocytes. When it is used as a dilutant for direct counting, the number of platelets is reduced to about half that noted when the indirect technic of Kemp[1] is employed. This discrepancy is not greatly altered by following the ingenious method of Rees and Ecker[2] for direct counting. With the indirect technic, the platelet count averages between 280,000 and 760,000 per cubic millimeter in normal subjects.

A more detailed consideration of our studies on platelet enumeration will be presented elsewhere. We wish to state here, however, that our experience with nine different methods of counting platelets has convinced us that the diurnal variation is from 50,000 to 100,000 platelets per cubic millimeter of blood in the normal human subject. An alteration in the platelet count of less than this does not seem to have any great significance. Duplicate determinations in platelet counting can usually be made within from 50,000 to 70,000, so that the diurnal variation would seem to be slightly beyond these limits of error.

AN UNUSUAL CASE OF MERCURIAL POISONING

JEANNETTE M. SHEFFERD, M.D., FALL RIVER, MASS.

A man, aged 29, Greek, a waiter, whose history was negative, entered the hospital, Dec. 15, 1924, having observed a painless swelling that had begun on the left side of the face. The tongue was heavily coated at the center and red at the edges; the teeth were heavily covered with tartar, but were not tender. There was pyorrhea alveolaris. The openings of the sublingual ducts were swollen. The whole mucous membrane of the hard and soft palate and the cheeks and alveoli, sublingual space and tongue were thickly, and almost completely, covered with bluish white patches varying in size from a pin-point to half the thumb, not indurated or elevated. The breath had a foul, mercurial odor, and the neck and glands were badly swollen. The patient was uncomfortable but not in great pain. The white cell count was 12,000. The temperature ranged from 99 to 100 F. Cultures were negative except for the ordinary mouth bacilli.

A very careful and close questioning failed to reveal any history of syphilis, and the patient stated again and again that he had taken no medicine in any form whatever for a period of many months. We were so sure that this was mercurial poisoning that he was repeatedly questioned by every physician who saw him. Each time the answer was always the same: "I have not been sick for a long time and have taken no medicine." A smear was made for Vincent's angina, and while a few spirochetes were found and an occasional fusiform bacillus, they were not typical Vincent's spirochetes, which should have been prevalent in a case so well developed as this one. Again, the mouth was more nearly covered with these patches than is usually the case in Vincent's angina, and there were no patches at any time on the tonsils. Leukoplakia was ruled out because of the numerous patches, tenderness, swelling and absence of induration of the patches. Regardless of the history, blood was taken for a Wassermann test, but for laboratory reasons the report was delayed for more than a week. Fearing that this condition was due either to syphilis or to mercury taken for treatment, a report of the blood was not awaited, and the patient was given arsphenamin; but the condition was slow in yielding to treatment.

The intern finally got the information that a few days before entering the hospital the patient had sought the advice of a drug clerk or physician for the relief of pediculosis pubis, and had received a 3 ounce box of mercurial ointment. That night he had developed a severe cold and had taken a hot bath, had used almost all the ointment the first time, had gone to bed, and had covered his head with bedclothing. The following day the symptoms occurred. The patient had not associated the ointment with the taking of medicine, so he was not trying to hide anything when he denied its use. At no time did the urine show albumin or any pathologic change. The patient was treated for mercurial stomatitis, and in a few days his condition cleared and he was discharged from the hospital.

Several days after the discharge, the report of the Wassermann test was returned 4+ in both antigens. We were able to reach the patient by telephone, and when informed he still asserted that he had no knowledge of the fact and that he had in no way taken medicine for that or any other purpose. He was perfectly willing and anxious to receive antisyphilitic treatment. We feel that the condition was due to mercurial poisoning, the result of having used the ointment so freely, taking a hot bath, going to bed, and covering the head with the bedclothes. He probably inhaled enough mercury to give him a local poisoning, which involved the buccal mucous membrane and glandular system without giving any general symptoms.

124 Franklin Street.

2. Rees, H. M., and Ecker, E. E.: Improved Method for Counting Blood Platelets, J. A. M. A. **80**: 621 (March 3) 1923.

AN EASY METHOD OF AURAL EXAMINATION

E. W. SIMMONS, M.D., PORTLAND, ORE.

An electrically lighted ophthalmoscope makes an excellent instrument for examining ear drums. I recently had occasion to examine an ear when I had no light other than an ophthalmoscope. I inserted the speculum and examined the drum through the ophthalmoscope, using it in the same manner as for a fundus examination; and by turning in a plus ten or a plus twelve lens, I obtained a magnified field that was better than that obtained with the ordinary electric auroscope.

I find that very few men possess an auroscope, or else they neglect or only casually examine ears. As an ophthalmoscope is almost a diagnostic necessity, its possession may serve a double purpose and stimulate routine ear examinations.

409 Stevens Building.

Devitalized and Concentrated Foods Cause Constipation.—The scandal of present-day dietetics is nowhere more manifest than in its consequent cures of constipation, which is the most important penalty which we pay for our depravity. In the matter of arterial disease it is recognized that the quality of the blood which passes along the arteries is often responsible for disease in the arteries themselves. Now, if it is possible for the material passing along a conduit to influence the integrity of the walls of that conduit, as admittedly it is, then the principle is surely applicable to the intestinal tract, and it is safe to affirm that the stasis which so often takes place in that tract is due to the toxic nature of the material which passes along it. We know that certain substances are irritants of the tract and that certain other substances are sedatives of the tract. In the same way we may suppose that, just as some types of food, or their wastes, produce a stimulating or irritating effect on a peristaltic action, so other types of food, or their wastes, produce a paralyzing and retarding effect on the peristaltic action.—Williams, Leonard: *Practitioner* **114**:72 (Jan.) 1925.

Special Article

THE ART AND PRACTICE OF MEDICAL WRITING

I. AN ACCEPTABLE PAPER *

GEORGE H. SIMMONS, M.D.
Editor and General Manager Emeritus, American Medical Association
AND
MORRIS FISHBEIN M.D.
Editor, The Journal of the American Medical Association
CHICAGO

Fifteen years ago, there were approximately 230 medical journals in the United States. Today, there are about 125 in which appear a vast number of original—so called—contributions to the literature of scientific medicine.

The writing of articles on medical subjects, and their publication, play no small part in the making of a successful physician. It is by means of these that he becomes known outside his own community. Through the reading of papers before a society, he makes himself and his work known to hundreds; through his publications, to thousands. And, even more important, the writing of an article helps to make the writer better informed on the subject he discusses.

He who would succeed must properly prepare himself in this branch of his work. Although the requirements for entrance to our modern medical colleges are such that the medical student should have had sufficient preliminary education to enable him to write a grammatical sentence of correct structure and with correctly spelled words, the experience of medical editors indicates that the majority of physicians either have not the ability or are too careless to do this. Three fourths of the manuscripts voluntarily offered to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION are returned. What are the reasons for their rejection?

CAUSES FOR THE REJECTION OF MANUSCRIPTS

Lack of Space.—During the last twelve years, from 1,500 to 2,000 manuscripts have been submitted each year for publication in THE JOURNAL. With such a large number of papers, "lack of space" becomes a prominent cause for rejection; but, no matter how many papers may be on hand, a well prepared paper on a timely and practical subject, that will appeal to a fair proportion of readers, especially to general practitioners, is always accepted. A paper that is informative, that presents new facts or practical information and that is fairly well written, is not returned. Naturally, therefore, there are other causes for rejecting manuscripts than lack of space.

Plethora of Material on One Subject.—A plethora of material on one subject, with the peril of devoting too much space to it, is one cause for the return of papers. This is likely to happen when a new treatment or theory is introduced, or during and immediately after an epidemic of some particular disease. The introduction of arsphenamin was followed by an ever-increasing lot of papers on the subject, all optimistic. Wright's opsonins and opsonic index produced a flood of articles of varying quality and character. Focal infection, long since swamped under a veritable deluge of manuscripts, is still a live subject in the minds of many physicians, although few offer anything new or conclusive. The tonsils and tonsillectomy, and especially instruments for doing tonsillectomies, have been sadly overworked subjects. Following the Great War, papers on war experiences constituted a noticeable percentage of all that were received. And yet, no matter how much a subject may have been discussed or how much space may have been devoted to it, it is not overdone as long as new, scientific evidence or new, worth-while facts are forthcoming.

Fancies Versus Facts.—Conspicuous among returned manuscripts are the productions of the theorists who, without scientific knowledge, claim that they have solved problems that are puzzling research workers and scientists. The number of physicians who have the courage to discuss scientific problems concerning the fundamental and elementary principles of which they are entirely ignorant is larger than many imagine. Such papers usually are returned with the suggestion, circumspectly phrased, that an ounce of fact is worth a ton of theory.

That every physician has a right to express his opinions, to advance theories and to make known his discoveries is an accepted principle, and he should not be denied this right by an editor without a good reason. But the reader also has his rights, and the editor should regard these rights as paramount. The reader has the right to demand that the editor shall not publish fiction for fact or fallacies which he—the reader—is not qualified to detect. The editor is supposed to have knowledge of the author and of his dependability that the reader cannot have. The reader certainly may expect that the editor will comb out such material as is obviously false.

A few years ago, a well known physician sent for publication a paper in which he claimed that he had discovered a bacterial causative agent for a not uncommon, apparently noninfectious disease. If based on fact, the discovery was epoch making. The average reader, especially if he had not been trained in bacteriology, might easily have been deceived into accepting the author's statements as dependable evidence. To the bacteriologist, the organism was reminiscent of a common contaminator in careless work. But the author was a man of well earned national repute, and a frequent contributor to medical literature. Recognizing that the judgment of great men may be warped by overenthusiasm, the editor, nevertheless, was influenced by the author's reputation; he felt that the responsibility in this instance should rest on the author, and the paper was accepted. In this case, the paramount rights of the reader were overlooked.

On another occasion, a manuscript was submitted in which the author advanced the theory that both the cause and the cure of cancer were matters of diet. The evidence submitted, however, was not convincing and the paper was returned, in spite of the fact that this author was nationally well known. Shortly afterward it appeared in an eastern journal. Its publication has done harm.

Not long since, an article entitled "The Etiology and Elimination of Tuberculosis" appeared in a medical weekly. It was full of fallacy and misstatements. For instance: "The vaccine as employed against smallpox contains syphilis and is the primary cause of the white plague"; and "syphilis is the primary lesion that allows the development of tuberculosis." Further on the readers were told, as by one of authority, that

* This is first of a series of articles. When concluded, these papers, together with additional material, will be published in book form.

syphilis is the cause of cancer. Undoubtedly, the readers of the journal in question sent some emphatic protests; but, instead of apologizing, the editor justified his action in publishing the article by saying: "As it was written by a physician practicing medicine, we decided that it should come to light, in spite of its weird conclusions. We believed that it should be presented before the medical profession and cause a healthy discussion." The editor was not true to his readers. Far more harm is done in the publication of such fallacious matter than in procrastinating with, or in rejecting, a dozen papers offering new theories and new evidence which may be of value but which are not convincing.

Society Papers.—One of the chief causes for overabundance of medical periodical literature undoubtedly is the publication of papers that were written not for publication but to be read before a medical society. A large percentage of articles appearing in medical journals are of this type. Such articles are often based on textbooks or on easily accessible literature and contain no original observation, new thought or record of experience. They may review a subject in a more or less complete form and thus be useful to read before a society, since they constitute a basis for a general discussion; but such papers may not be worth publishing. As a rule, they are not well thought out or as carefully written as are those prepared especially for printing, and are not of a character to elevate the tone of periodical literature or to add to the sum total of our knowledge of scientific medicine. They cumber our literature. This is the only excuse that may be offered for the deficiencies of such manuscripts. The author may have something that he is anxious to present to his fellows; more likely he has not, but selects his subject haphazardly and writes his paper from a sense of duty.

Specialists or consultants from the city are frequently invited by the smaller medical societies to present papers. Such papers are more likely to be well worked up than the paper by a member of the society, whose usual purpose is merely to open a discussion. The visitor from abroad is anxious to make a good impression, and will try to enlighten his hearers on the subject he presents. He thus brings profit not only to others but also to himself. Often, however, such papers may rightly be dubbed "pot-boilers." They, too, are usually written for reading, not for printing.

Frequently, an editor receives a manuscript from the secretary of a medical society, who writes that the paper was enthusiastically received by the society, which voted that it be submitted with their special approval to the periodical to which it has been sent. The editor finds, to his astonishment, that the paper is ungrammatical, discursive or verbose, or poorly organized, with no sequence in argument or arrangement of the subject. The author's presentation, his inflections, and, above all, his personality, carried it over, not only without the audience discovering any fault, but with applause as he read, and congratulations at the end.

The Medical Society Address.—If an author is to be the only speaker, his anxiety will not be as to how briefly he can present his subject, but, rather, as to how he will fill the time he is expected to occupy. Brevity, conciseness, the elimination of unnecessary details, and the avoidance of branching off into unrelated and irrelevant subjects and the use of colloquial language will give him no concern. He will consider as appropriate and proper the relating of unimportant incidents in his experience; for instance, a case report, an occasional aside, and personal allusions. In this he will be right. But he will not be right if he submits his article for publication without modifying it. Common courtesy compels his audience to remain and listen until he concludes his address; but if his paper is prolix or rambling, it will have few readers. When the paper is published the personal equation does not enter in, and the courtesy of the listener has vanished; it is now cold type. At least 10 per cent. of the manuscripts rejected by THE JOURNAL have been returned because they have been prepared for reading before a society and then submitted for publication, evidently without revision. Let it be remembered that a manuscript that is fit to read is sometimes fit to print, but a manuscript that is fit to print is always fit to read.

Length.—An occasional reason for the return of a manuscript is its length. Like Einstein's theory as to space and time, however, length in this case is a matter of relativity. A paper of 500 words may be long; one of 5,000 may be short. The primary point is not length but whether the material justifies the length. Usually, manuscripts are unnecessarily long because of easily avoidable faults in construction, such as rambling, verbosity, prolixity or diffuseness. These points will be taken up later.

A Standard.—Manuscripts are therefore rejected by editors for various reasons relating to the suitability of the material and its general construction. Of these, by far the most important is the material; for, if the contribution is of value, other faults are susceptible of correction. As a standard for judging the value of the material embodied in a manuscript, that set for section papers in the Scientific Assembly of the American Medical Association may be borne in mind. This standard provides that papers must either (1) contain and establish positively new facts, modes of practice or principles of real value; (2) embody the results of well advised, original researches, or (3) present so complete a review of the facts concerning any particular subject as to enable the reader to deduce therefrom legitimate, important conclusions.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

INSULIN-SQUIBB (See THE JOURNAL, Nov. 8, 1924, p. 1509).

The following dosage form has been accepted:

Insulin-Squibb 40 Units: 5 Cc. vials containing 40 units in each cubic centimeter.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1924, p. 306).

H. K. Mulford Company, Philadelphia.

Rabies Vaccine (Phenol Killed)-Mulford.—The virus is prepared according to the general method of David Semple. It consists of a sterile suspension of the brain tissue of rabbits moribund from the injection of virulent fixed strain of rabies. The virus is killed by the use of phenol and by incubation at 37.5 C. for twenty-four hours. Marketed in packages of 14 doses, each dose consisting of 2 Cc., contained in a syringe. All the doses are of the same potency; one dose is to be given daily over a period of fourteen days.

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SATURDAY, MARCH 21, 1925

VITAMIN A AND DISEASE

The medical profession has been slow to accept the idea of the occurrence of so-called deficiency diseases in the sense that a specific pathologic defect may be due primarily to the lack of some dietary essential. This is not surprising when one considers the profound impression created by the modern knowledge of infection as a factor in disease, and the consequent tendency to seek a *materies morbi* in every case in some concrete form. Owing to the fact that animal experimentation in this field has made rapid strides in England and this country, in particular, the way has been paved to a more ready acceptance of the somewhat radical new conceptions of disease due to dietary deficiencies. It happens, however, that in America, where the scientific background for the picture of deficiency diseases has been so well prepared, conditions of living have for the most part been too satisfactory to promote the genesis of human illustrations; whereas in Europe, exposed as much of it is to less favorable economic conditions and food situations, the disorders in question have arisen in larger numbers but failed to receive the etiologic significance that modern medical investigation would accord to them.

This is notably true of xerophthalmia. It was first described in the middle of the last century by German ophthalmologists as a disease of the eye, peculiar to childhood, which leads to blindness. According to the Danish pediatrician Bloch, a student of the disorder, in the middle and at the close of the last century and in the beginning of this, "epidemics" of an eye disease were described which were undoubtedly identical with xerophthalmia. These epidemics occurred among negro children in Brazil, during periods of fasting in Russia, and when famine and summer diarrhea appeared together in Japan; and it was always the badly nourished and diseased children of the poorer classes who were attacked. The majority of the authors who have described these epidemics therefore associate xerophthalmia in children with a poorly selected and deficient diet. Primitive medicine in Japan, Russia and other countries has from ancient times treated this eye disease with fat substances, especially cod liver oil and liver, and Mori has declared that the disease is due to lack of fat in the diet. Yet while xerophthalmia is being more frequently recognized in Europe, there is hesitation in according a dietary origin to the disease in harmony with the growing experimental evidence from the other countries. Stransky[1] of Vienna, for example, has seen the characteristic eye lesions fail to be cured in children through diets that cannot be regarded as devoid of fat-soluble vitamin, or vitamin A, lack of which is so often attended with ophthalmia.

In a critical examination of the problem, Bloch[2] has emphasized the contributory rôle of impaired digestion in the genesis of xerophthalmia. Obviously, if the protective foods cannot be adequately digested and absorbed from the alimentary tract, it is futile to expect them to exert their normal functions. It now appears that when butter fat and cod liver oil, for example, are furnished after the symptoms have developed, the coincident digestive disturbances may militate against the effectiveness of the dietotherapy. As Bloch summarizes his experience, the organism's lack of the fat-soluble A factor, of which xerophthalmia is the characteristic symptom, may arise partly from a deficient supply; that is, food poor in the fat-soluble A factor, or diseases of the digestive tract which hinder digestion and the absorption of this factor, and partly from increased consumption during the periods of growth and in wasting infections. While xerophthalmia is a characteristic symptom, the other symptoms which Bloch has found to follow deficiency in the fat-soluble A factor are not particularly specific. Inhibition of growth, loss of weight, depressed mental and bodily vitality and impaired immunity may be found more or less pronounced in all diseases accompanied by a chronic debilitated state. This is demonstrably true in liver diseases associated with impaired digestion and absorption of fats.

The situation thus outlined presents the problem of administering the protective or curative vitamin A in some other manner than by the oral route. As Bloch points out, it is known from animal experiments that the vitamin B and C factors can be absorbed from the organism, not only from the digestive tract but also when they are injected subcutaneously or intravenously. Whether the same applies to the fat-soluble A factor, animal experiment has not yet been decided. Reports of a few cases in which subcutaneous injections of the potent fats have been administered suggest therapeutic advantage from them. The parenteral administration of fats, for

1. Stransky, E.: Klinische Beiträge zur Frage der Aetiologie der Keratomalacie, Jahrb. f. Kinderh. **104**: 183 (Feb.) 1924.
2. Bloch, C. E.: Further Clinical Investigations into the Diseases Arising in Consequence of a Deficiency in the Fat-Soluble A Factor, Am. J. Dis. Child. **28**: 659 (Dec.) 1924.

example, by subcutaneous injection, although it has been lauded by a few clinicians, still presents too many objections and uncertainties to encourage its adoption except as an emergency measure. Perhaps progress in the isolation of active concentrates of vitamin A will lead to a more satisfactory possibility of meeting the difficult situations. Meanwhile, it should be recalled that current investigations place the genesis of xerophthalmia and rickets, the latter also associated with the lack of a fat-soluble vitamin, into distinct categories. Light that is potent in the cure of rickets is apparently without comparable direct benefit in xerophthalmia. Fat-soluble A is not specifically curative of rickets. The clinical manifestations of a lack of vitamin A are distinct. Bloch is ready to assert that xerophthalmia has not yet been demonstrated in any other disease, and that it is the characteristic symptom of the organism's lack of the fat-soluble A factor. The conception of the clinical entity called "general marasmus" is gradually becoming clarified.

THE INTERPRETATION OF EDEMA

The study of human pathology has been greatly facilitated whenever it has become possible to imitate or reproduce particular types of lesions or abnormal processes experimentally. One need merely recall the investigation of various forms of infection and the results of partial or complete extirpation of various glands in illustration of the advantage that has accrued to both science and practical therapeutics from the knowledge gained in such ways. Progress is particularly likely to be slow whenever scientific workers are forced to depend solely on chance observations of clinical abnormalities. This has applied in no small measure to the consideration of edema, a condition extremely difficult, if not actually impossible, to reproduce experimentally. One cannot read the earlier literature of the subject without recognizing the widespread belief that edema is somehow associated with hydremia. Richard Bright, for example, imagined, in formulating his conception of renal dropsy, that through the great loss of albumin in the urine the blood became so thinned and watery that it could filter through the blood vessels, while normal plasma was too viscid to do so. An inspection of current textbooks also reveals the analogous suggestion that "with sudden increases in weight the blood often becomes hydremic, and with sudden losses of weight it becomes more concentrated."

The futility of such conclusions as a tenable explanation of edema of the tissues is at once suggested by the test of experiment. It is easy to produce a hydremic plethora by infusing saline solutions in large volumes into the circulation. The blood dilution remains transient at best; but even when renal elimination of the water is prevented by ligation of the kidneys, pronounced edema rarely appears. The fluid interchange between the blood and the tissues proceeds under such conditions without the genesis of the phenomena specifically designated as edema. It requires something more than mere dilution of the blood, or hydremia, even in the absence of normal kidney function, to produce an excessive accumulation of lymph in the cells, intercellular spaces or serous cavities of the body.

A further popular hypothesis has centered in the somewhat vague conception of plethora—hydremic plethora—as a pathogenic factor in edema. This is by no means a simple postulate. The total volume of the blood conceivably may be increased or decreased without any alteration of its constituent formed elements and dissolved components; or any of these may vary independently of the others. The confusion has, in fact, led Brown and Rowntree [1] of the Mayo Clinic to propose a precise scientific terminology of the volume states of the blood, so that we may speak of normovolemia, hypervolemia or hypovolemia. Each of these may be simple, that is, having a normal cell-plasma volume ratio; or they may be either polycythemic or oligocythemic. The multiplicity of these self-explanatory terms in itself indicates the varied possibilities of blood changes that may demand consideration in the genesis of edema.

The recent clinical studies of Brown and Rowntree emphasize anew that one should no longer regard the blood changes associated with edema and diuresis as due merely to the addition or withdrawal of water, or even to simple changes in blood volume. The processes encountered are, as they point out, complex, and probably involve changes in water, solids, volume of blood, and plasma and cells in varying degrees in different forms of edema. Their studies of the composition of the blood revealed no fixed relationship between hydremia (increased percentage plasma water) and the volume state. Diuresis exercises no fixed influence on the volume and composition of the blood. Only minor changes characterize the disappearance of edema of renal origin, and in some instances are probably related to compensatory efforts of the blood to establish normal cell plasma volume ratios. The cases of renal edema show the least fluctuation during diuresis. It is interesting to note that emphasis is beginning to be placed on edema as a protective phenomenon. From one standpoint we may imagine that the blood, like the other tissues and organs of the body, is provided with a mechanism safeguarding against excessive fluid accumulations, particularly in the absence of adequate renal function. Aldrich [2] recently referred to the possibility that, like many pathologic processes, edema may have protective

1. Brown, G. E., and Rowntree, L. G.: The Volume and Composition of the Blood, and the Changes Incident to Diuresis, in Cases of Edema, Arch. Int. Med. **35**: 129 (Jan.) 1925.
2. Aldrich, C. A.: A study of the Clinical Course of Generalized Edema, J. A. M. A. **84**: 481 (Feb. 14) 1925.

or curative functions. It is not usually harmful in an acute way unless the brain, lungs or glottis are involved. Aldrich imagines that, by diluting the toxins present in the cells, edema may prevent serious toxic injury. From this standpoint, as he expresses it, edema might be looked on as a temporizing mechanism, rendering harmful products less potent until their genesis is stopped. In any event, the problems of edema, its genesis and its biologic significance are beginning to demand a far more comprehensive interpretation than they have ordinarily received.

BLACKSTRAP, TREACLE AND VITAMINS

As a component of the human dietary, old-fashioned molasses has largely gone out of use. Under a variety of names it has had a long and varied history in connection with human nutrition. There was a time, not many generations ago, when treacle was regarded as a panacea for a diversity of bodily ailments. It was mixed with various medicaments to provide supposed tonics or otherwise effective remedies. Its ancient glory, however, has given way before the advent of the therapeutic novelties and the dietary innovations of the present day. Formerly molasses was the mother liquor remaining after the removal of one crop of sugar crystals from the boiled-down juice of the sugar cane. As the separation of cane sugar by one crystallization is far from complete, the molasses thus secured was rich in sucrose and contained also much the greater part of the other components of the cane juice.

The introduction of modern methods into sugar-house practice has tended steadily to remove the sucrose more and more completely, with the result that the amount of molasses is decreased, its sugar content is lowered, and its content of impurities is increased. Sherman [1] has pointed out that the term "impurities" is somewhat misleading, since the components other than sucrose which cane juice naturally contains are unquestionably of food value; in fact, the molasses is a much less one-sided food than the sugar removed from it. Blackstrap, as the by-product of the manufacture of cane sugar is often popularly termed, is much relished by farm animals. Molasses and molasses feeds have been extensively used for many years with outstanding success in stock feeding; [2] in fact, while the popularity of treacle as a human food has waned, the use of blackstrap in animal rations seems to have waxed.

Perhaps, after all, molasses of one sort or another really has nutrient virtues that have not been adequately appreciated. The animal feeder, long ago, suspected that the residual nitrogenous and inorganic components of the plant juices, out of which sucrose is crystallized, may have a real food value. And now investigators [3] at the Iowa State College in Ames have demonstrated that molasses is a source of vitamin B, regarding which students of nutrition are at present somewhat solicitous. With a liberal inclusion of the crude product known as blackstrap in the ration of experimental animals, maintenance and growth were satisfactory without any additional supply of vitamin B. Cane molasses is much richer in this vitamin than is either beet molasses or sorghum.

As a characteristic illustration of the abandoned uses of molasses, many of our readers will recall the practice, humorously portrayed by Dickens in "Nicholas Nickleby," wherein liberal doses of "treacle and brimstone" were administered to the youthful pupils in Dotheboys Hall. In explanation of the virtues of the concoction, Mrs. Squeers remarked that it was given "partly because if they hadn't something or other in the way of medicine they'd be always ailing and giving a world of trouble, and partly because it spoils their appetites and comes cheaper than breakfast and dinner." If we may believe the newly discovered reputed virtues of vitamin B, however, the treacle treatment that many a youth of a past generation has doubtless rebelled at was, in some part, a physiologic benefaction in disguise.

ESSENTIAL HYPOTENSION

In contrast with abnormally increased arterial blood pressure, essential hypotension has heretofore received little consideration from writers on clinical medicine. There are, of course, special long recognized instances in which low blood pressure may frequently be encountered. They include such conditions as severe anemia, cachexia, active pulmonary tuberculosis, hypothyroidism, Addison's disease and some of the cardiovascular disorders. But there can no longer be any doubt that just as in a group of supposedly healthy young persons a noticeable percentage of cases of hypertension may usually be found, so hypotension also is by no means rare. By this is meant a systolic pressure below 110 mm. of mercury. According to Barach,[4] the incidence of arterial hypotension is fairly constant, and it is found in about 3.5 per cent. of persons apparently in good health. In a sense, however, they usually are physically subnormal; or it may be said that, among the normal, hypotension occurs in lighter weight persons of the hyposthenic and asthenic build having smaller chest capacity, and in those who are distinctly of the nonathletic type.

Perhaps it is still too early to attempt any scientific analysis of the actual causes of pronounced abnormalities in arterial blood pressure. The foremost

1. Sherman, H. C.: Food Products, New York, the Macmillan Company, 1924.
2. Henry, W. A., and Morrison, F. B.: Feeds and Feeding, Madison, Wis., the Henry-Morrison Company, 1923.
3. Nelson, V. E.; Heller, V. G., and Fulmer, E. I.: Molasses as a Source of Vitamin B, Indust. & Engin. Chem. **17**: 199 (Feb.) 1925.
4. Barach, J. H.: Arterial Hypotension, Arch. Int. Med. **35**: 150 (Feb.) 1925.

factors affecting this include the force and frequency of the heart beat—the energy-yielding influence—the resistance offered by the blood vessels, and the quantity and character of the circulating medium that is to be transported. All these can obviously be altered by exterior influences. In arterial hypertension, one thinks of kidney factors or arteriosclerosis as possible etiologic factors. Barach has reached the conclusion that when hypotensive states constitute the most marked abnormality of the person, "respiratory effort and oxygenation" are of foremost significance and responsibility.

There is some justification for this view to be derived from the study of the behavior of persons under conditions of diminished oxygen supply. In ascents to high altitudes, as in aviation or mountain climbing, it is now known that different persons react in unlike ways to the threatening anoxemia. According to Schneider and Truesdell [5] of the School of Aviation Medicine, with some men the higher or psychic centers are paralyzed before the vasomotor, cardiac and respiratory centers. Most of these persons can be carried into unconsciousness and for at least a few seconds will continue to sit perfectly erect as the heart rate and respiration continue to increase. This is called the nonfainting type of reaction. In other men the circulatory controlling, and sometimes respiratory, brain centers begin to show evidences of incoordination before voluntary attention and motor coordination are markedly affected, or at least before their breakdown occurs. The evidence of impending circulatory collapse is usually found in a rapid fall in the diastolic pressure; a drop in the systolic pressure, which is later supplemented by a diastolic pressure fall; or in a slowing of the heart rate. This type has been called the fainting reaction. Barach has expressed the response by stating that a normal person subjected to a diminished oxygen supply, such as occurs at high altitudes, will have a lowering of blood pressure. If he is of the sthenic type, he adjusts himself well; if he has a poor respiratory apparatus, he is sure to experience a more or less severe attack of mountain sickness. Barach accordingly points out that in the acute infectious diseases, especially those involving the respiratory tract, in which a respiratory deficit occurs, hypotension is found. In chronic pulmonary diseases, in certain metabolic disturbances and in other diseases in which there is an insufficient volume of blood to carry oxygen, as in hemorrhage or pernicious anemia, or in which the blood is a poor oxygen carrier, we again find arterial hypotension. All the evidence, when correlated, seems to point significantly, he adds, to the deduction that when there is a respiratory deficit and decreased oxidation, then we find arterial hypotension.

It is not easy to correlate cause and effect where many bodily functions are concerned. Nevertheless, the picture that Barach has presented of the condition commonly attending essential hypotension deserves to be reproduced: Taken as a group, the persons are distinctly undersized. They are nonathletic. They have narrow nostrils and, frequently, nasal obstructions; they have narrow chests and slender bodies. They distinctly belong to the hyposthenic and asthenic type. They have a smaller than normal chest capacity, and they have a marked tendency to muscular relaxation. Frequently, they have drooping shoulders, and they are shallow breathers. At times, we note irregular breathing. This irregular breathing is similar to the periodic type of breathing seen in newcomers to a high altitude, which is plainly due to oxygen want and is promptly relieved by oxygen inhalation.

5. Schneider, E. C., and Truesdell, D.: A Study of Low Oxygen Effects During Rebreathing, Am. J. Physiol. 55: 223 (March) 1921.

Current Comment

THE RICKETTSIAE

According to Koch's dictum, in order to complete the proof of bacterial etiology it is necessary not only to isolate the suspected micro-organism from a case of the disease, but also to grow it in pure culture outside the body and to be able to produce the malady in question artificially by inoculating animals with the culture. In more recent years, the plan of growing microbial suspects in artificial mediums has proved to be attended with great difficulties in some instances. Not until 1903 did Novy and MacNeal succeed in the artificial cultivation of trypanosomes. Since then other parasitic protozoans have been grown outside the body. Failure to succeed as yet with pathogenic amebas may be due to their dependence on the presence and action of certain kinds of bacteria. Indeed, the problem of the importance of symbiosis for the lowliest forms is one that has obtruded itself into many attempts to cultivate some of them. Recently, Wolbach [1] referred to the special importance of methods that may be employed in the face of failure to cultivate insect-borne micro-organisms in artificial mediums. He insists that properly conducted experiments in which the insect vector serves as culture tube, after natural or artificial introduction of the "virus," have yielded evidence fully as reliable and in his opinion less open to misconstruction than in vitro cultivation. Hence, Wolbach feels it to be a duty to challenge skepticism based on rigid adherence to Koch's postulates when dealing with insect-borne diseases. This statement may be applied particularly to the rickettsiae. The diversity of types of these minute micro-organisms, first found in insects, is yearly becoming more noticeable. It is evident that some of them are nonpathogenic; and it has become doubtful whether any of them are closely related. At present, small gram-negative, bacterium-like micro-organisms found in insects are called rickettsiae. The hosts of the thirty-nine nonpathogenic "rickettsiae"

1. Wolbach, S. B.: The Rickettsiae and Their Relationship to Disease, J. A. M. A. 84: 723 (March 7) 1925.

include fourteen species of arachnids, ticks, mites and spiders, and twenty-two species of hexapods (Insecta) distributed in nine orders, including numerous non-blood-sucking insects, as well as lice, ticks and midges. Out of this confusion, due in part to the novelty of the subject and also to the unexpected technical difficulties of investigation, Wolbach proposes to bring greater order by more rigorous classification. The term "rickettsia," he suggests, should be applied only to micro-organisms adapted to arthropods ("insects") and pathogenic for vertebrates and having the following characteristics: small size, pleomorphism, slight affinity for anilin dyes and intracellular habitat in the arthropod host. This new group of micro-organisms at once becomes formidable through the well founded evidence that *Dermacentroxenus rickettsi* is the cause of Rocky Mountain spotted fever, and that *Rickettsia prowazeki* is the cause of typhus, and the strong presumptive evidence that *Rickettsia pediculi* is the cause of trench fever. With the contemplation of these discoveries goes the sobering recollection that several scientists have lost their lives as martyrs in the study of these diseases—among them that sturdy young American, Howard Taylor Ricketts, whose memory the name rickettsia honors.

OSTEOPATHY IN ENGLAND

In reply to a critic who complained that osteopaths had been described as "unqualified practitioners," the *Medical Press and Circular*[1] pointed out that "for more than four hundred years the medical profession had been under the authority, first of the church, second of the Royal College of Physicians and later of the General Medical Council." Moreover, during this whole period the practice of medicine had been confined to those who had completed a course of study which, although varying from time to time, was always considered necessary for the protection of the public against inefficient pretenders. The monopolies granted to the church and later to the college were found to be mischievous and in turn were abrogated. Authority over the medical profession is now in the hands of the General Medical Council, which requires that before any one is granted a license to practice medicine he must have studied a full curriculum of subjects, each and all of which are deemed necessary to make him competent to deal with what may mean the life or death of his patients and so that he can deal intelligently with any type of case that may present itself. The comment ends with the statement that "these regulations have been judged necessary for the protection of the public, whose welfare is the prime object of the medical profession. When it fails in proficiency or in its duty, it will be time to consider whether the public can be better served by others; but not until then."

1. M. Press & Circ., Feb. 11, 1925, p. 104.

Empiric Therapeutics.—We are apt to forget that although there is reason for believing that a remedy may do good, we are not justified consequently in assuming that the remedy in question does good until actual proofs are forthcoming.—Bramwell, Edwin: *Lancet* **1**:265 (Feb. 7) 1925.

Association News

THE ATLANTIC CITY SESSION

Meeting Places of the Sections

A tentative selection of meeting places for the Sections of the Scientific Assembly at Atlantic City has been made as follows:

SECTION ON PRACTICE OF MEDICINE and SECTION ON DISEASES OF CHILDREN: Vernon Hall, in Haddon Hall.

SECTION ON SURGERY, GENERAL AND ABDOMINAL, and SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY: Music Hall, end of Steel Pier.

SECTION ON OPHTHALMOLOGY and SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY: Hall at Jerome Hotel.

SECTION ON PATHOLOGY AND PHYSIOLOGY and SECTION ON PHARMACOLOGY AND THERAPEUTICS: Gold Room, Hotel Chalfonte.

SECTION ON DERMATOLOGY AND SYPHILOLOGY and SECTION ON UROLOGY: New hall being built at Morton Hotel.

SECTION ON ORTHOPEDIC SURGERY and SECTION ON NERVOUS AND MENTAL DISEASES: New hall, Hotel Chalfonte.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY and SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: New hall being built at Haddon Hall.

SECTION ON STOMATOLOGY and SECTION ON MISCELLANEOUS TOPICS (RADIOLOGY): Crystal Room, Hotel Breakers.

It may become necessary to make some changes in this list, in which case prompt notice will be given through the columns of THE JOURNAL.

Wonderful Motor Roads Lead to Atlantic City

The Local Committee of Arrangements announces that those wishing to attend the annual session at Atlantic City, May 25-29, will find a great system of modern roads leading that way. Those coming up from all sections of the South through Washington and Baltimore, those entering from the West through Pittsburgh, Cleveland, Philadelphia, and those from New England and the North through New York will find roads of a splendid type throughout. No one need hesitate to plan an automobile trip so far as roads leading to Atlantic City are concerned, as all state roads are exceptionally good. Moreover, cities are close together, affording good places to stop over nights or to procure meals.

ANNUAL CONGRESS ON MEDICAL EDUCATION, MEDICAL LICENSURE, PUBLIC HEALTH AND HOSPITALS

Held in Chicago, March 9, 10, 11 and 12, 1925

(Continued from page 822)

MEDICAL EDUCATION

MARCH 9—AFTERNOON

TWENTY-FIVE YEARS' PROGRESS IN MEDICAL EDUCATION (Continued)

Physiology and Pharmacology

DR. C. C. GUTHRIE, Pittsburgh: In the housing of physiology there has been vast improvement. In a large number of schools, the space at present is adequate. But even in some of the newer laboratories, overcrowding is reported, owing to larger classes. In pharmacology, since few schools had provision for it twenty-five years ago, the increase has been enormous. Considering it as entitled to separate departmental facilities, and that many schools house it in the department of physiology, its space allotment is small in comparison to other major departments. Pharmacology has received least consideration of any of the major subjects in space allotment and in all other respects, and for this reason, its amazing progress and achievements are all the more worthy of recognition and commensurate support.

In general, it seems that the average appropriations for undergraduate requirements are fair and considerably better

than for graduate and research needs. In some schools, appropriations, except for salaries, have met the increased costs of equipment, material, supplies, etc. But in many, this has not been the case.

Compared to twenty-five years ago, the number of full-time men in both subjects shows an increase, but there is a scarcity of laboratory staff material.

In the strictly fundamental sense there has been little change in methods of instruction. The greatest change probably has been in the subject matter presented. Much more human physiology is included. The time allotted for the undergraduate courses on the whole is considered fair. By some, the importance of elective courses is emphasized, and this view is strongly endorsed. Major activities should be concentrated on fundamentals. The giving of clinical courses before the fundamental ones is disapproved, and by many considered harmful. It is felt that the judicious use of clinical material in teaching physiology and pharmacology is very desirable but not absolutely essential. The hygienic importance of physiology is stressed. Preponderating opinion indicates that clinical physiology and pharmacology should be given in the clinical years and by adequately trained clinicians who maintain active interests in the subjects. All agree that every clinical instructor should have adequate training in the fundamentals and utilize them in his teaching. A great indirect factor in the promotion of physiology and pharmacology has been the enormous increase in clinical interest, appreciation and application of conceptions and methods. Such development is being greatly promoted by closer association of the laboratory and clinical groups, and the prospect is most encouraging. It is believed that it would be a worth while experiment for the departments of a group of schools favorably located to exchange lectures. The growing tendency toward closer physical correlation between laboratory and clinical quarters and hospitals, probably will lead to great amputation in practical and applied medical research in schools. Group investigation, that is, investigations conducted by laboratory and clinical men, will be greatly facilitated. If good teaching is an essential qualification of a medical school instructor then it seems to follow that teaching experience is as essential in preparation as research. Combined teaching and research fellowships seem the best solution of the problem along these lines, but few departments are so fortunate as to have them. We are limited to student assistants and the careers of a number of such individuals, both in laboratory and clinical fields are a great satisfaction. The problem would be simplified if state licensing boards would give a reasonable credit for postgraduate laboratory experience, in lieu of hospital intern service. No doubt, if such interns were permitted to retain their school laboratory connections and to devote a reasonable amount of time to them, a considerably larger number would choose laboratory careers.

American Teaching of Pathology: A Retrospect to 1890

DR. JAMES EWING, New York: Thirty-five years ago, the teaching of pathology labored against great handicaps. Classes were large, time was short, the scope of material was restricted, coordination with clinical studies was lacking, and the information imparted was fragmentary and inadequate. Bacteriology was generally restricted to a brief elective demonstration course. Great improvements were introduced before 1890, by the lengthening of the curriculum to three and then to four years, and the establishment of longer required courses in pathology and bacteriology. However, the character of the men engaged in laboratory teaching was of a high order, the drilling of students was of a high order, and hospital internships were at a premium, so that the general capacity of the medical graduate in the field covered was probably equal to that attained today.

During the last thirty-five years, enormous additions to the knowledge of pathology and bacteriology, essential to the practicing physician, have been made; but for twenty-five years there has been no increase in the time devoted to these subjects. Any improvement in the results of teaching must have come from technical advantages supplied by modern methods and equipment. The question arises whether modern conditions enable the schools to present the larger body of present knowledge any more adequately than our predecessors handled their lesser task. I think not.

There are many good reasons why a fifth university year should be added to the medical curriculum, making the course as long as that in Germany and elsewhere. Chief of these is the fact that the best students now spend two or three years hunting for instruction under conditions far less favorable than the medical schools should permit. The demand for more and cheaper physicians should not lead to any further lowering of the standards of the medical profession, since these standards are now lower, intellectually, than those of former generations.

No addition to the curriculum should be considered until the present four years are more effectively employed. The outstanding fault in medical education is its superficiality. The constant assertion that we cannot teach the whole of medicine has prevented the schools from attempting to present or develop the whole of any single subject, in the university sense. They have been content with the elementary undergraduate courses, and are generally unprepared to do more, even if time were provided.

The medical schools of the future should be equipped and prepared to teach pathology and medicine on a postgraduate scale With material designed to present the whole of essential subjects, with adequate teaching staffs, by better correlation, more discriminating evalution of subjects, elimination of waste time, and an enlarged sense of responsibility for obtaining practical results, the present superficial undergraduate courses could be brought nearer to the postgraduate standard. When this has been accomplished, the addition of a fifth year might be considered by those who wish to see the gap between undergraduate and postgraduate teaching still further narrowed.

Internal Medicine and the Medical Specialties

DR. SAMUEL W. LAMBERT, New York: The successful internist today must be an expert in many branches of medicine to which some of his colleagues devote their entire time, study and research. The one great outstanding event in medical education of the late nineteenth century was the founding of a medical school in Baltimore owning a large endowment, its own hospital, with no inherited prejudices of a proprietary nature, and especially with no traditions as to hospital prerogatives. The most important factor in the history of the teaching of internal medicine was the selection for the single head of this medical clinic of a remarkable man: William Osler. Osler reestablished the English method of clinical clerks and surgical dressers in the wards of Johns Hopkins. This real reform of clinical teaching in internal medicine was adopted slowly by other schools, largely because of the difficulty of persuading the trustees of the available hospitals that such a plan was not only a duty but a distinct advantage to their own institution. It is not yet a universal method of instruction, although it ought to be, at least until the addition of a fifth intern year to the curriculum as more recently proposed has become an accomplished fact. The leaders in other branches of medical science were as keen as those working in internal medicine, and the general tendency in all the high grade schools was for improvement.

The modern reform in medical education began within the profession itself. It was in 1900 also that organized medicine began to notice medical education, and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION began to collect statistics on the education of medical students. Under the initiative of this organization, the Council on Medical Education and Hospitals began its epoch-making work in 1904. During the last twenty-one years this Council, under its able chairman, has been a most potent force to elevate the standards of and to influence medical education favorably. Its rating of medical schools, the intensive discussions on standards and on the school curriculum at its meetings, its annual reports on every phase of medical practice, its assistance and advice given to weaker schools, have accomplished much to improve education in every department of medicine. Its

chief credit lies in the reduction of the number of schools from 160 to eighty by the elimination of the hopelessly weak. Of the eighty schools now left, only twelve lack universal recognition in every state in the Union. The results of the inspections of the Council and those of an independent investigation were embodied by Mr. Abraham Flexner in a report made for the Carnegie Foundation for the Advancement of Teaching and published in 1910. This report presented in great detail the shortcomings of the individual schools. It was a great help to every school that was in earnest to better the instruction given and to improve its own status. This report proved a moral force to help the Council in its work. The results of the work of the Council have been accomplished without any authority to enforce its suggestions, but entirely through its strength of organization and its power to influence public opinion and medical opinion and to persuade legislation in the states. The Council stands today as the representative body of physicians in their efforts to improve themselves. The Association of American Medical Colleges has undertaken to work out in detail the desires of its component schools to improve education. It also has become a great power to bring about reform under the leadership of the best educators in the profession. Its work is done as the representative of the schools rather than as that of the general profession.

The influence of the state licensing boards and the medical practice laws under which they act is of quite a different nature. It represents the state control of the professional education in medicine. The result on the whole curriculum of the medical schools has been a standardizing of a minimum requirement which any school may exceed, but which no school may fail to meet without risking the exclusion of all its graduates from the licensing examination of the particular state whose law has been transgressed. The result of such control by law has raised the general standard of education without question, but it has not been entirely an unmixed benefit. The rigid and inelastic curriculum of today is the result of these laws, which unite in demanding not only that a fixed number of hours be allotted to each subject but also that the total 3,600 or 4,000 hours of instruction be spread over four calendar years in four periods of eight months each. Some of these laws demand the addition of unusual subjects for instruction, which may be criticized in good faith as unwise or unnecessary. The state laws therefore not only prescribe a fixed number of hours of instruction but also compel a fixed number of months of vacation each year for every student of medicine. The result often is that the more eager students undertake clinical work in hospitals during vacation, although they receive no credit for it either by state or by university. The system of clinical clerks has been introduced in the higher grade schools. The mere admission of students to hospital wards is not sufficient; it is essential that these students must be made to feel the responsibility of their privilege. This can be accomplished only by making their work a part of the permanent record of the hospital. Extramural courses, as formerly given in internal medicine and in the specialties, have practically been abolished. The energy that formerly found expression in this way is now devoted to postgraduate work.

The fifth, intern, year seems a logical sequence to the trend of medical education in internal medicine and general surgery during the last decade. But an ideal scheme by which any school can control the personnel of a sufficient number of hospitals to place all its graduates seems too distant a goal to be reached in any measurable period of time. The present advantage of the fifth year seems to be limited to an approval by his school of the hospitals to which a prospective graduate may go. The fifth year is an advance, however, and, properly administered, will lead to greater usefulness in education of a larger number of hospitals than is now the case and will improve the opportunities for teaching in clinical work in the major subjects of medicine, surgery and pediatrics and in some specialties as well for the students of the third and fourth year classes.

Medical education in the United States has reached a development during twenty-five years of which the profession may be pround. An event of note is the much praised establishment of the full-time professorship. It is customary to compare the ideal full-time professor of internal medicine with the professor of Greek in the same university. In medical education this full-time idea is of special interest to the teaching of internal medicine, which is the first department in every school to be drafted in this so-called reform. I admit that I have been opposed to the full-time idea from its very beginning. I believed that it would tend to diminish attention to the hospital wards rather than the reverse; that it would create a habit of thought that the sick were objects for research rather than subjects for cure; that it would limit the experience of the younger men trained in the isolation of a full-time clinic, and that the ultimate product, the recent graduate, would acquire a very restricted view of medical diagnosis and therapeutic measures. I have an opportunity to study the results of the education of many schools by examination for hospital internships and by contact with the interns themselves. I have seen no reason to change my mind concerning the rigid full-time idea. I have observed that the full-time professor of medicine takes the same vacation as does his full-time colleague in the department of Greek, and that both are likely to have the same limited point of view and lack of touch with the economics and social needs of the community. I believe that the future development of medical education will not be along the line of the full-time clinic with its long vacation, its cloister isolation and its ex-cathedra teaching. Backed as it is by millions, this fallacious system has been able to buy its way into many places of prominence. It is a hectic educational disease which, allowed to run to a logical conclusion, will ruin the finances of any medical school now existing. Medical education will recover from it and will probably be uninjured by the experience. The modern education of the physician lays undue stress on the laboratory in diagnosis, and neglects the study of the symptomatology of the onset and the course of a disease. The teaching of older clinicians has been forgotten in the worship of faithless idols, and the present day is searching for new specifics to cure and for easy short cuts to diagnosis. The physician of today has forgotten that typhoid and the pox were well known and diagnosticable long before Widal and Wassermann were born and before the causative germs of these diseases were discovered.

The Teaching of Surgery and the Surgical Specialties

Dr. William D. Haggard, Nashville, Tenn.: The teaching of surgery has been largely recast. The merits of the purely didactic course have been supplemented by widespread clinical teaching, the utilization of small bedside groups, the employment of section work in the dispensary, the introduction of clinical clerkships, the use of student assistants in operative work, and the universalization of the internship as practically a part of the medical course. The large clinical amphitheater operative demonstration has given place to operations before small sections, and while perhaps lacking in the dramatic appeal and inspirational urge of the great masters, has enabled the student to see the actual details of the procedure. Many of the great principles underlying surgical practice were driven home by the amphitheater operator with a fervor that is difficult to duplicate. Many brilliant thoughts and illustrations sprang from the mind of the operator working under stimulating conditions, which became a part of the student's mental equipment. The intrepidity of the operator, the boldness and the mastery of the situation gave a certain confidence and courage to the student worthy of emulation. The minutiae of the operation were lost in the enunciation of the principles, and what the chief lacked in fineness of detail, he made up in the recognition of essentials, the summoning of a large experience and the employment of the known methods that had availed. The didactic lecture, which lacked the completeness of the quiz and the visualization of the actual clinical condition, was replete in illustration of the subject with the forceful personality of the lecturer, drawing not only on the known facts of the subject presented, but also on his wealth of experience. To this was added the glamor of authority. Many of the teachers so forcibly

impressed their personality, their mental bias and traditions on the student that it opened for him a new entry to the world of science. He may have forgotten many of the things that were taught, but he was inducted into the scientific spirit and the love for truth and knowledge by example as well as by precept.

The revolutionary changes made in the medical college situation of America, which was carried through by the Council on Medical Education and Hospitals, had its decided effect on the teaching of surgery. The advent of the all-time men in the preclinical branches enabled the surgical department to be brought into closer touch with pathology and bacteriology, with which and with anatomy it is so essential to be associated. The teachers of surgery became more interested in embryology and anatomy as applied to their teaching. Then, too, the joint conference of the pathologists and the medical group and the surgical group has had a distinct influence. This had caused a closer clinical association of medicine and surgery, much to the benefit of both. The combined clinics should be encouraged, so many subjects can be advantageously studied most effectively in that way. Surgical staffs are working in closer harmony and are correlating their work. Instead of referring a patient to the various consultants, it is better to have them, if possible, see the patient with the section at the time of the demonstration. The surgical procedures indicated either in principle or in the actual operation should be shown in abundance during the consideration of the given subject. Material permitting, every didactic lecture is closely followed by clinical demonstrations.

The surgical specialties that have made such signal advances have been noticeable also in teaching. On the whole, it has been splendidly done. If there is any criticism, it would be that it has perhaps been overdone. It is difficult to curb the enthusiasm and the importance of the subject to the teacher of a specialty, and yet we must all realize how utterly impracticable it is to make a specialist during the undergraduate course. We have given up the idea of making a full-blown surgeon of a man at the time of his graduation. Some plan must be evolved to bring students to graduation one or, better, two years sooner. One year should be saved in the precollegiate work. It has been the general feeling of many men interested in the teaching of surgery that the surgical teacher, the head of the department, should not necessarily be an all-time man. It has become more and more recognized that the many advantages of the purely academic type of instruction are offset in surgery, which is an art as well as a science, by the withdrawal of the head of the department from the active participation in the life of the community and in its responsibilities and opportunities for service. He could really serve with little or no compensation and allow the funds in the budget for the department of surgery to be given to the younger men, who are so badly in need of it. A successful teacher and practitioner of surgery is often a man of affairs and can well bring to bear those qualities which have made him successful to the department of surgery. We should be relieved of the routine work and given the direction of the important phases of the department. This plan is not incompatible with an all-time teacher of surgery, who may be allowed to fill that for a reasonable period and then be advanced and be permitted to do private practice. It is not fair to condemn a man to a full-time place for life. It is increasingly difficult to get all-time professors of surgery. The all-time professor of surgery has not solved our problem.

Obstetrics and Gynecology

DR. REUBEN PETERSON, Ann Arbor, Mich.: The teaching of obstetrics in 1900 was in a deplorable condition. Owing to the immense development of the surgical side of gynecology from 1890 to 1900, obstetrics was forsaken for gynecology. Chairs in medical schools were divided, so that as late as 1912, of forty-two medical schools, in only eight, or one fifth, were there combined chairs of obstetrics and gynecology. Twelve years later, thirty-one of seventy Class A schools, or nearly one half, have combined chairs of obstetrics and gynecology.

This resulted in decreased influence of the obstetricians in the medical faculties. Their requests for better clinical facilities for teaching obstetrics along modern lines were ignored. The obstetric teachers were forced to develop outside clinics, where students delivered patients in their homes, with or without supervision. This, at the best, is inadequate teaching, wasteful of the time of student and teacher, and should no more be forced on the teacher of obstetrics than on the teacher of medicine or surgery.

A larger clinic is more necessary for the proper teaching of obstetrics than for the other major divisions of medicine, since students must be taught the principles of a normal function, human reproduction, as well as procedures necessary for abnormal obstetrics. This can best be done in women's clinics, which should be built in close connection with large general teaching hospitals. Directors of these clinics should be full-time men in the sense that their work should all be done within the clinic. Experience has shown that too much is expected of heads of clinical departments in medical schools. They cannot serve two masters successfully. If the professor of obstetrics and gynecology earns his salary by outside work, while the medical school is saved this expense, it loses in that the teaching suffers. Just as we would not go back to part-time preclinical professors, twenty-five years from now we may not desire to return to the plan of the clinical teaching now in vogue. If we are to take high rank in the field of education, we must not demand the impossible of our teachers of medicine.

Obstetrics and gynecology are much better taught today than twenty-five years ago. The old operating amphitheater clinic has given place to the diagnostic clinic; individual teaching, made possible by small sections, has taken the place of the didactic lecture. The enormous development of prenatal clinics throughout the country is only one illustration of the better teaching of obstetrics today and the attempt to emphasize the preventive side of this part of medicine. While there will always be a place for gynecology, it is to be hoped that its operative side, dependent on results of poor obstetrics, will be less prominent in the years to come.

The greatest need in obstetrics and gynecology, as pointed out recently by Dr. Pusey, is to cut out the unessentials in medical education, thereby giving time in the medical course for the teching of principles that will enable young graduates to become ideal general practitioners.

DISCUSSION ON TWENTY-FIVE YEARS' PROGRESS IN MEDICAL EDUCATION

DR. ANTON CARLSON, Chicago: I have taught physiology in the medical schools for twenty years, and, if anything, I am more dissatisfied with my course today than I was twenty years ago. There is room for improvement. It is easy to critcize, but it is much more difficult to improve. I agree that a good deal that is at present included in physiology, for example, might well be eliminated; but where shall we draw the line? The fact is that the exceptional man or woman will come out at the top under any system or under no system, because they continue to be students, whether they start in as the apprentice of the practitioner like the plumber or the carpenter, or whether they go through the present system. We frequently forgot that the prime essential is not the teacher, is not the subject matter, is not only the curriculum but the raw material that one is teaching, and with the raw material they will come out at the top if they remain students.

There is room for improvement and there is continual improvement. I am not prepared to take the view that I understand Dr. Guthrie took when he expressed his gladness that the quantity of practical work had been decreased. I admit that in the past the students in the medical courses in physiology have been drilled too long on muscle and nerve physiology; as a matter of fact, in many of the medical schools that is about the only practical work they got. A certain amount of demonstration work is all right, but, after all, the student can learn from books. I admit that we may be doing too much laboratory work; but to reduce it too much and rely on the easier and cheaper way of demonstration is quite as dangerous.

In some phases, physiology demonstrations are necessary. To illustrate: In our course on the nervous system we make fifteen or twenty fundamental lesions of the nervous system on healthy animals under aseptic conditions. The acute and the permanent defects in these animals are demonstrated to the students. At the end of the course these animals are examined post mortem.

I should like to touch on another point on which I have been fanatical, possibly, and that is, I believe that no man or woman should be given the M.D. diploma without some personal, individual training in research. I do not mean that they should be competent in research on the standards of the Ph.D. degree, but that they should have the actual training, the actual doing in the work. We cannot teach a man to be a scientist, and if there is any justification for calling medical science science, we must have personal training in research.

I was much impressed by Dr. Lambert's discussion regarding the present experiment of full-time instructors in the clinical branches; but couldn't we all at present agree on this, that it is an experiment, and then keep our mind open as to the result of the experiment? It has not gone far enough for us to form any judgment, but I do object to the idea expressed by one of the speakers in the statement that a man should not necessarily be condemned to a full-time appointment in the chair of surgery or medicine. Condemned! If he has any such feeling when he goes into that work, he is not only condemned but he is damned to start with. I am not a condemned man; I am a free man; I have the freedom to do what I like to do.

We have heard much condemnation today of the student relying too much on the laboratory tests. I do not believe that it is possible to rely too much on laboratory tests if they are properly controlled; but we should not forget that we are probably making as many mistakes using our five senses direct as we are making with our laboratory tests. Neither of them is infallible.

DR. LOUIS B. WILSON, Rochester, Minn: This symposium has been to me rather bewildering. We have been told, on the one hand, that we have been wholly unsuccessful in developing general practitioners; we have been told by some that we have been equally unsuccessful in developing men who are capable of doing good research work. We have had a great many intimations that the old apprentice system was much better than our present one. Part of that we may discount, of course, as merely the ideas of the white haired man who remembers his youth, that period in which all men were giants.

Dr. Ewing makes the very positive plea for graduate work as a necessary concomitant of undergraduate work. In this I wish to concur unqualifiedly. Is it not possible that this one thing, judged in the light of our experience of the last twenty-five years, might go a long way toward solving the problems that seem to have led us into a maze? Would it not be possible for the newly appointed Commission on Medical Education, for example, to make a careful survey of the things it is necessary that the general practitioner ought to know, since we all agree that it is the fundamental function of the undergraduate school to train general practitioners? Would it not be possible for us to come a little more clearly to our conceptions of what is necessary to be taught to the general practitioner and complementary to those things which are not necessary to be taught to the general practitioner? Then would it not be possible also for us in the midst of this determination perhaps to find some general practitioners who might be competent to teach in our modern medical schools undergraduate schools?

Is it not possible that this turning away of our students from general practice may be due, in part at least, to the fact that they never see a general practitioner in an honorable position as professor? Is it not possible that we have gone a bit too far in the teaching of undergraduates by eminent specialists?

Is it not also possible that we might, if we had a graduate school, find an outlet for the cosmic urge of the eminent specialist to transmit his knowledge to future generations in the graduate school and let him haul off from the undergraduate student? Could we not utilize him to excellent advantage as a teacher of graduates where his instruction properly belongs and to some extent at least attempt to bring the general practitioner into contact with the undergraduate student?

Incidentally, I think that Dr. Haggard has not full information concerning the amount of so-called postgraduate work in review courses that is now being done in the United States. We have no accurate figures of the old days; we do have accurate figures of the present day; and if Dr. Haggard will study those, I think he will be convinced that the amount of that work which is going on today is not only much greater in volume but also of much higher character than ever before in the history of the United States.

If this symposium has brought out anything in my mind (perhaps I am all wrong) it is the great desirability of our association perhaps in the next two or three years recognizing the importance of determining what are the things that a general practitioner ought to know, having those taught in large measure by general practitioners, the establishment of graduate schools for the teaching of specialties, of those taught by the specialists who are now in undergraduate schools, give university recognition to those things, and then let us not worry over state boards with their requirements.

DR. JOHN A. WITHERSPOON, Nashville, Tenn.: I have been much impressed not only with the papers but also with the discussion. I think that Dr. Wilson strikes the key-note. I do not believe there is any place for the specialist or the research man in the strict sense of research in the undergraduate school. I believe as firmly as I can believe anything in the world that research men are born. If a medical school has any real function, it is to turn out medical men who will take care of the women and children of this country; and we are not teaching medicine today that is making them fit for such work. Those who practice in communities as I do and who teach in communities as I do know that it is impossible, nearly, to get a student to go out into any of the rural communities and practice medicine. Why? Not always because the roads are bad; not always because his pay is not good, but simply because his teaching has made him feel that he cannot practice medicine unless he is within a laboratory or under a hospital roof.

The man who teaches men how to practice medicine is foolish if he does not utilize all the possibilities of research and everything that is brought to him from these scientific courses, but he must not forget that there is an art in the practice of medicine as well as a science, and if he forgets that art he never will be a useful practitioner in the homes of the sick. I have no patience with this idea that a man has got to have an electrocardiograph to tell what the pulse is doing. If a man uses his five senses and studies the heart and the pulse, do you mean to tell me that he needs maybe a three thousand dollar instrument to go out to Bill Jones' home and tell whether that pulse is failing or whether he has a myocarditis or what? No, let him use the common sense that God gave him and let him study the functions that come into a man's soul when he goes into the home to try to save human life and try to prolong human life.

I have no fight to make on the sciences of medicine; they have done a great deal for me and for the world; but at the same time we should not forget that those old men of whom we maybe make fun today marked the road and made it possible for us to get where we are today. I have no patience with the man who never studied medicine, who never practiced medicine, who never intends to practice, sitting aside to teach medicine in America. I want the men who have helped make medicine, men who have studied both the science and art of medicine, to set aside the possibilities of the future teaching of medical students.

I think Dr. Wilson is right. I am utterly opposed to sending any man who is not well prepared to any rural district, and I do not think that we shall ever better matters by lowering the standards; but I do believe that they would be bettered a lot if we had what he suggests, general practitioners of ability that not only practice the science of medicine but, above all, practice the art of medicine also.

Not long ago a man wrote me guaranteeing $3,000 to any young man that I would recommend in my graduating class

who would come and practice in a good country neighborhood. What would you have done when you graduated? I know I would have been tickled to death. Not one of my boys even thought of it.

Now, there is something wrong. If the medical profession does not take this thing seriously and does not give it some practical, thorough study and make some modifications that will make possible the education of young men willing to go out and practice medicine, the lawmakers of the country are going to take hold of it and we are going to give up our birthright. That is all there is to it, and it is happening in my state and in yours. Our last legislature has done away with our medical laws that it took us twenty years to develop. We do not want to lower our standards; we do not want to lessen the possibilities of the future usefulness of physicians; we want to take from the great scientific problems that are going on and let him learn by them; but let us educate men who will be willing to go out and practice medicine, not like their forefathers but better than their forefathers.

DR. ALEXANDER PRIMROSE, Toronto: I think there is a great deal of confusion in the minds of most of us in the term "full-time man." What does it mean? To illustrate, I may refer to conditions at the University of Toronto. A few years ago we made up our minds to have a so-called full-time man in medicine and another in surgery. At that time we discussed the problem very much as it has been discussed all over this country, and we determined the limitations the full-time man should have; we discussed as to whether or not he should be allowed to see private patients; we discussed whether or not he should have the greater part of the teaching or if it should be divided up among part-time men under his control. The professor of surgery and the professor of medicine were eventually appointed by the board of governors of the university without any restrictions whatever. That is a kind of full-time man which I think is not meant perhaps when the full-time man is condemned. What it means is this: A man is given a salary on which he is capable of living independent of practice. The result is that he feels it his chief duty to serve the university and the medical school. He must necessarily devote in the early part of his career the large bulk of his time to university work; but as time goes on that man has certain consultation work or in surgery he has operative work to do, and he uses his own judgment as to how much he will undertake, at the same time feeling that his university job is the primary object of his life's work. In the University of Toronto that scheme has worked out admirably and, as far as we are concerned, we are quite satisfied with the full-time men under those terms. It is, of course, very different from the full-time man that I know exists elsewhere, who is fully restricted to his professorial duty and is not allowed to do work outside the hospital or the clinic.

I also wish to stress the point that has been referred to here that by far the bulk of the teaching of the clinical branches is done by part-time men. The full-time man is there as the administrator, and in our hospital, which is the chief university hospital, the Toronto General Hospital, it works out admirably. The full-time man has his whole staff in surgery, for example, meeting twice a month, and they discuss all that has gone on in the various divisions of the service and discuss it from all standpoints. Moreover, they discuss teaching, and are therefore a well organized team for the purpose for which they are created.

DR. WILLIAM S. CARTER, General Education Board: Something may be done to meet this need of practitioners in rural districts by providing just the conditions that the young men desire in the cities. If, for instance, community hospitals of varying sizes, depending on the number of people to be served, could be provided so that patients from the large area could be treated, where laboratory facilities could be provided in units of different sizes, susceptible of being enlarged, with outpatient service and nursing service, it seems to me that that is a matter which would meet the situation better than any effort to lower the present standards of medical education.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractors in Court.—Judge Pearce, of the circuit court at Dothan, has issued an order requiring J. Homola and Ballard Clark to appear before him and show cause why, since Jan. 1, 1925, they have "treated diseases of human beings without obtaining a certificate of qualification from the state board of medical examiners."

CALIFORNIA

Changes Among Health Officers.—The Health Department of National City having been taken over by the San Diego County Health Department, Dr. William D. Rolph, National City, automatically ceases to be health officer of that city. The San Diego County Health Department is now serving nearly all of the territory of the entire county. —— Dr. Albrecht O. Eckardt, for many years health officer of Sierra County, has resigned to make his home on the Pribilof Islands.

COLORADO

Report of Tuberculosis Dispensary.—The Denver Municipal Tuberculosis Dispensary, which was established in 1914, has registered a total of 8,359 patients and has had in attendance 38,428.

Associate Professor Appointed. — Dr. Hugo Mella, acting head, department of neuropathology, Harvard Medical School, Boston, has been appointed associate professor of neuropathology and psychiatry in the University of Colorado, Denver, and associate director of the Colorado Psychopathic Hospital. Dr. Mella will begin his new duties May 15.

CONNECTICUT

University News.—The new Sterling Hall of Medicine at Yale University, New Haven, was dedicated, February 28. Addresses were made by Dr. Harvey Cushing, Boston, and Dr. William H. Welch, Baltimore. Dean Milton C. Winternitz of the school of medicine presided. The building was presented to the university by George H. Church, representing the Sterling Fund.

Personal.—Dr. Martha M. Eliot, a member of the department of pediatrics, Yale University School of Medicine, New Haven, has been appointed director of child hygiene of the Children's Bureau. During the last year Dr. Eliot has been in charge of a demonstration of methods for the control of rickets in young children, which Yale University School of Medicine has been conducting in New Haven in cooperation with the Children's Bureau.

DISTRICT OF COLUMBIA

Venereal Disease Must Be Reported.—An act was approved, February 26, which requires that the administrative officer of every hospital, dispensary, sanatorium and penal institution shall report any case of venereal disease in any person under the supervision and surveillance of such officers; that the judge of the juvenile court and of any court of criminal jurisdiction, who has reasonable grounds to believe that any person brought before him for trial has venereal disease, shall immediately report to the health officer and that the health officer, or a physician licensed in the District, shall make a medical examination of such persons, but no such examination shall be made against the consent of such person unless on order of the court; that every physician practicing medicine in the district shall report to the health officer within ten days any case of venereal disease which he has been employed to treat, but said report shall in no event disclose to any but the health officer, or his agents, the identity of the person so treated except under certain conditions. Any person who violates any of the provisions of this act shall, on conviction, be punished the first time by a fine not exceeding $100, and the second or any subsequent time by a fine not exceeding $300, or by imprisonment in the workhouse for not

exceeding sixty days, or both.—There is a clause in this act which prohibits the advertising of preparations for the treatment of venereal disease in lay publications and the sale of such medicine to a lay person except on the prescription of a licensed physician. It is compulsory under the new law for physicians to advise their patients as to measures they should take to prevent the spread of these diseases.

ILLINOIS

Water Treatment Plant.—The city of Springfield has awarded a contract for a twelve million gallon water treatment plant, which will involve such features as mechanical clarifiers and carbonization chambers to remove the iron from the water and make it possible to clarify Sangamon River water, if that source should be used at any time. The project will also include a storage basin for purified water of the same capacity as the treatment plant.

Outbreak of Measles.—The state director of health reports that an epidemic of measles is spreading over the state at the rate of about 150 new cases per day, having increased from an average of 300 cases weekly two months ago. In epidemic years measles causes more than 500 deaths in Illinois, a mortality greater than that from either scarlet fever, typhoid fever or smallpox.

Chicago

Personal.—Dr. Raymond W. McNealy, Chicago, has been appointed chief surgeon and medical director of the Illinois Manufacturers' Mutual Casualty Association.

Community Health Pageant.—An All-Community Health Pageant was held at the Masonic Temple, Sixty-First Street and Cottage Grove Avenue, March 13-14, under the sponsorship of the Jackson Park Branch of the Chicago Medical Society, the Illinois Federation of Women's Clubs, and with the cooperation of the Chicago Dental Society, Chicago Health Department, the state department of health and the Chicago Retail Druggists Association. Among others, Dr. Morris Fishbein, Editor, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION; Dr. Henry B. Thomas, University of Illinois; Dr. George T. Palmer, and Dr. Robert W. C. Francis gave addresses. In the old people's contest, a prize was given for the most healthy person past 70 years of age.

Society News.—Dr. Edward C. Rosenow, Rochester, Minn., addressed the Chicago Medical Society, March 11, on "Studies on Etiology and Specific Treatment of Arthritis, Ulcer of the Stomach and Certain Epidemic Diseases of the Nervous System." The discussion was led by Drs. Tice, Kerr, Roberts, Hamburger, Ivy and Traut.——At the regular meeting of the Chicago Tuberculosis Society, March 12, at the Brevoort Hotel, among others, Dr. Knud Secher, Copenhagen, who has done the clinical work for Dr. Møllgaard, spoke on clinical experiences with "Sanocrysin" in tuberculosis.——The next meeting of the Chicago Society of Anesthetists will be held, March 31, at the Morrison Hotel. There will be a round table discussion on "The Present Status of Ethylene Oxygen Anesthesia."——At a joint meeting of the Chicago Medical Society and the Chicago Urological Society, March 18, Dr. Gustav Kolischer spoke on "Surgical Interference in Medical Kidney Conditions"; Dr. William T. Belfield on "Some Phases of Seminal Duct Infection," and Dr. Victor D. Lespinasse on "Male Sterility."——At a joint meeting of the Chicago Neurological Society, the Institute of Medicine and the Chicago Pediatric Society, March 19, the subject for discussion was "Medical Aspects of Behavior Disorders in Children." Among the participants were Dr. Bert I. Beverly, Children's Memorial Hospital; Drs. David M. Levy and Herman M. Adler, of the University of Illinois; Dr. Isaac A. Abt, Prof. L. L. Thurstone, Prof. Frank N. Freeman, Ph.D., Dean John H. Wigmore and Prof. Thomas D. Eliot.

INDIANA

Dr. Grayston Honored.—The Huntington County Medical Society, Huntington, gave a banquet, March 3, in honor of the fiftieth anniversary in the practice of medicine of Dr. Boston H. B. Grayston. Dr. Grayston began the practice of medicine with his father and occupies the same office today, with his brother. He has one son a physician, another a dentist. Dr. Grayston was a charter member of the Huntington County Medical Society.

Postgraduate Instruction.—A postgraduate course on surgery of the neck will be given at the Indiana University School of Medicine, Indianapolis, three evenings a week for six weeks, beginning April 8. The class will be limited to twenty-four, and the course is open to any graduate physician who desires advanced knowledge in anatomy of the head and neck, with especial reference to otolaryngology. Applications should be addressed to the Registrar of the School of Medicine, Indianapolis.

IOWA

Society News.—Dr. Wilber E. Post, Chicago, addressed the Linn County Medical Society, March 12, at Cedar Rapids, on "Nephritis," and Dr. Arthur W. Erskine, Cedar Rapids, on "Radiation Therapy."

City Health Officer Sued.—S. C. Oathout, manager of the National Health Mineral Company, Sioux City, who was recently arrested on a charge of practicing medicine without a license and bound over to the grand jury, has filed suit, it is reported, against the city commissioner of public health, for $10,000 for alleged assault and battery.

KANSAS

Dr. Brown, Secretary of State Board.—Dr. Earle G. Brown, Topeka, has been elected secretary of the state board of health to succeed Dr. Milton O. Nyberg, Wichita, effective June 1. Dr. Clarence A. McGuire, Topeka, was elected president of the board. Dr. Brown has been health officer of Topeka for six years. The work of Dr. Nyberg, who succeeded Dr. Samuel J. Crumbine, in 1923, was commended in resolutions adopted by the new board.

LOUISIANA

Shreveport Drug Inquiry.—The number of arrests that had been made, March 2, under federal grand jury indictments resulting from the government's investigation of the narcotic situation at Shreveport, was seventeen. These included, it is reported, Dr. Paul T. Alexander and Dr. John E. Rooks, both of Oil City, both released under bonds of $2,500; Dr. Augustus J. Thomas, Shreveport, and Dr. Naum G. Nasif, also released under bonds; Dr. Frank B. Waits, Shreveport, Dr. Albert R. Bush, Bossier City, and Dr. Henry C. Tate, Shreveport. Each of these physicians is charged, it is reported, with violation of the Harrison Narcotic Law.

Tour of Latin American Sanitarians.—The Interchange Group of the League of Nations representing Latin American countries, directed by Dr. Louis Destouches of the League of Nations, Geneva, Switzerland, arrived in New Orleans from Cuba, March 12. Dr. Oscar Dowling, president, Louisiana State Board of Health, was invited by Surgeon General Cumming to arrange an itinerary for the group. They left New Orleans early, March 13, visiting Houma, inspecting oyster and fish industries, a model dairy and water plant; Morgan City and Cromley, noting particularly mosquito control work. They stopped at New Iberia and Lafayette, and spent the night in Lake Charles, March 14; next day, en route to Shreveport, brief stops were made in Oakdale, Alexandria, Natchitoches and Mansfield. On the remainder of the trip they will visit Monroe, Alexandria, Jackson, Baton Rouge, Carville and New Orleans. These officials are interested in efforts for better sanitation, in institutional care for the sick and in the schools. The party comprises Drs. de Alba, Mexico; Alvarez, Cuba; Larde-Arthez, San Salvador; Zwanck and Mrs. Zwanck, Argentina; Gubetich, Paraguay; Schiaffino, Uruguay; Maldonado, Venezuela; Valega, Peru; Mattoz, Brazil; Louis Destouches, Geneva, Switzerland, and Francis H. McCrudden, Bostbn.

MARYLAND

Personal.—Dr. John B. Manning, Baltimore, has left for Santa Barbara, Calif., where he will establish a hospital for children.——Dr. Charles W. Stiles, U. S. Public Health Service, gave a series of three lectures recently before the Research and Journal Club, department of medical zoology, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, on "International Rules of Zoological Nomenclature."——Dr. Joseph C. Bloodgood, Baltimore, who has been spending the winter in Egypt, will return about March 20.——Dr. Frank N. Ogden has been appointed surgeon to the Baltimore City Fire Department to succeed the late Dr. Elijah J. Russell. The fire board has also designated Dr. William D. Noble and Dr. Eugene J. K. Zeller emergency surgeons of the department.

MASSACHUSETTS

G. Stanley Hall Professor Appointed.—Walter S. Hunter, Ph.D., head of the department of psychology, University of Kansas, has been appointed to the G. Stanley Hall chair of genetic psychology at Clark University, Worcester, established in memory of the first president of that institution and supported by funds left by him.

Society News.—At the annual dinner meeting of the Boston Health League, February 11, Dr. Francis X. Mahoney, city health commissioner, was elected president; Dr. Merrill E. Champion, secretary; Dr. Charles F. Wilinsky, executive secretary, and Dr. Richard G. Wadsworth, treasurer. The league is made up of thirty-six public and private welfare agencies which cooperate for the purpose of efficiency in public health work.

MICHIGAN

Chiropractors in the Canal Zone.—The *Bulletin of the Wayne County Medical Society* notes that chiropractors in the city of Colon, Panama, Canal Zone, are required to pass the same examination before the National Board of Hygiene as is required of members of the medical profession.

Leper to Be Deported.—Andrew Engortona, 19 years of age, an unnaturalized Italian, is being held at the Herman Kiefer Hospital, Detroit, on account of having leprosy. Plans have been made, it is reported, for his deportation. This is said to be the first case of leprosy found in Detroit for several years.

Personal.—Dr. Wade H. Brown, Rockefeller Institute, New York, lectured at the University of Michigan, Ann Arbor, March 19, on "Chemotherapy and Treatment of Syphilis."——Dr. Eugene B. Pierce, superintendent, Michigan State Sanatorium, Howell, since 1909, has resigned, effective April 7, to engage in private practice at Ann Arbor.——Dr. Ernst A. Pohle, head of the roentgen-ray deep therapy department, Mount Sinai Hospital, Cleveland, has been appointed assistant professor of roentgenology, University of Michigan Medical School, Ann Arbor.——Dr. Matthew R. Slattery has resigned as a member of the board of health of Bay City.

Summer Session at Biologic Station.—The University of Michigan Biological Station will hold its seventeenth session for research and instruction on the shores of Douglas Lake, Cheboygan County, from June 22 to August 14. The instructors will be from the University of Michigan, University of Kansas, Yale University, the City of Detroit and the Kansas State Agricultural colleges and other institutions. Under certain conditions qualified graduate students may complete the requirements for the M.A. or M.S. degree by working at the station through three or four summer sessions. Inquiries should be addressed to Prof. Paul S. Welch, Ph.D., acting director, University of Michigan, Ann Arbor .

MISSOURI

Dr. **Halstead's Birthday.**—Dr. Joseph S. Halstead, Breckenridge, celebrated his one hundred and seventh birthday, March 4. Dr. Halstead has been confined to bed for the last year.

State Medical Bill.—The senate refused to amend the medical bill now before the legislature so as to exclude Christian science practitioners from provisions of the act. The measure, which has been engrossed, provides that an applicant for medical examinations must have a high school education and be a graduate of a reputable medical college. The penalty for violation of the law is imprisonment up to two years and a fine up to $500.

NEW MEXICO

Outbreak of Diphtheria.—The *Bulletin of the New Mexico Bureau of Public Health* announces that a serious outbreak of diphtheria has occurred at Cuyote, in Rio Arriba County, and that without previous information the bureau was informed that ten deaths had occurred. The state bureau immediately sent a physician to take charge.

NEW YORK

Annual Meeting of Public Health Laboratories.—The annual meeting of the New York State Association of Public Health Laboratories will be held at the Hotel Syracuse, Syracuse, May 12.

New Water Supply.—Owing to the pollution of the Hudson River, the authorities of the city of Albany have appointed a consulting engineer to make a thorough investigation of the problem of obtaining a new source of water supply. A force of engineers and other workers will undertake the field work soon, investigating every possible source of water supply.

New York City

The Physicians' Home.—The Physicians' Home Committee has secured the Century Theater, April 20, where the opera "The Love Song," Offenbach, is being played. Physicians are urged to purchase tickets to aid the home. They may be obtained by mail from Dr. Silas F. Hallock, 901 Lexington Avenue, New York.

American Association for Medical Progress.—A meeting of the Boston directors of the American Association for Medical Progress was held in New York, March 5, for the purpose of discussing the formation of a New York board of directors (the association recently moved its headquarters from Boston to 370 Seventh Avenue, New York, and was formerly known as the Friends of Medical Progress, a lay organization). George E. Vincent, Ph.D., addressed the meeting. The association is now obtaining statistics regarding vaccination for smallpox, which will be published in pamphlet form about May.

Another Unit in Medical Center.—It was announced, March 12, that the Neurological Institute has decided to accept an invitation to join the Columbia-Presbyterian Medical Center at One Hundred and Sixty-Eighth Street and Broadway. The institute will receive land on which to erect a building at its own expense. The present building at 149 East Sixty-Seventh Street will be retained and the facilities for the outpatient department there increased. The Neurological Institute was founded in 1909; the work recently has taxed its equipment at the present location. Already associated in the new medical center are: The New York State Psychiatric Institute and Hospital; the College of Physicians and Surgeons of Columbia University; the Presbyterian Hospital; the Babies Hospital; the Presbyterian School for Nursing, and the Neurological Institute.

Sale of Academy Property Authorized.—At the stated meeting of the New York Academy of Medicine, March 5, resolutions were adopted giving the trustees authority to sell the premises known as and by the street numbers 15, 17, 19 and 21 West Forty-Third Street, in the Borough of Manhattan, on such terms as they deem best for the interests of the academy, and the president is authorized to execute, sign, seal and deliver, on behalf of the academy, a contract for the sale of the premises, the terms of which have been approved by the trustees. The resolutions authorized the use of the proceeds of the sale in the erection and equipment of a new building for the academy and specified that any balance remaining after the completion of the new building be placed in the endowment fund of the academy. The scientific session of this meeting was devoted to a discussion of the recent typhoid fever outbreak in New York City.

Ambulance Service under Municipal Management.—Several years ago, the city took over the supervision of the ambulance service, which was formerly attended to by individual hospitals. Ambulance districts were set apart, each being assigned to one hospital exclusively. This system has been found superior. During the last year the number of ambulance calls was more than 130,000. A summary shows there were: dead on arrival of the ambulance, 4,338 persons; treated and not removed, 55,917; taken to hospitals, 63,099; taken home or elsewhere, 5,291; unnecessary calls, 4,332; transferred from one hospital to another, 1,513. There were forty-one hospitals under the supervision of the ambulance board as regards calls. Of the 110 ambulances maintained and operated by these hospitals, thirty-two were owned by the city and seventy-eight by private hospitals. Payments are made to private hospitals for ambulances actually installed and in operation. The expense of maintaining the ambulance board is about $150,000 a year.

NORTH CAROLINA

Records of Tuberculosis Patients.—Records have been kept on all patients at the state tuberculosis sanatorium in the past ten years, except fifty-six whose whereabouts are unknown. Dr. Paul P. McCain, superintendent, reported recently that 89 per cent. of the early stage patients treated in the ten years are living, and 80 per cent. are at work.

Immunity to Diphtheria.—Dr. Alexander C. Bulla, health officer, Wake County, has completed a study of the Raleigh school children with respect to immunity to diphtheria in congested districts of the city as compared with the more sparsely settled sections. The study shows fairly conclusively

that children living in the densely populated sections exhibit a manifestly greater degree of immunity than children in the outlying districts. Of the 836 children receiving the Schick test recently, 276 were found positive.

NORTH DAKOTA

Hospital News.—Three stories will be added to the present three story building of Trinity Hospital, Minot, at a cost of about $100,000.——A new five story wing will be added to St. John's Hospital, Fargo, at a cost of $325,000.

OHIO

Health Commissioner Resigns.—Dr. Clarence M. Valentine, who has been commissioner of the Franklin County Board of Health since its creation five years ago, has resigned, effective April 30.

Two Millions to Medical School.—It was announced, March 3, that the widow of Dr. Christian R. Holmes, for many years dean of the University of Cincinnati College of Medicine, had bestowed on the university a gift of $25,000, in addition to the $250,000 previously given to endow the Christian R. Holmes deanship. This gift completes the pledges necessary to insure $700,000 from the General Education Board, and thus completes the $2,000,000 endowment for the College of Medicine, which was pledged in 1919.

Education of Maladjusted Children.—The Eighty-Third General Assembly authorized the establishment of a bureau for training teachers of subnormal and delinquent children at one of the state teachers' colleges. This bureau was placed under the administration of Miami University, Dec. 30, 1920, and in order that teachers might have better opportunities to observe the results of such work, was moved to Dayton in 1922. A branch station was opened in Cleveland for training teachers from the Cleveland schools in 1923. To be admitted to these courses, students must have had the equivalent of two years in a standard normal school, or courses on psychology and education in a college for a like period; or they must have the equivalent of a one year's course in a standard normal school or college and in addition at least two years' successful teaching experience in elementary schools; or they must be teachers of good scholarship who have taught at least five years in elementary schools and who are recommended by the local superintendents of schools. Full-time students pay an incidental fee of $10. Applicants may write to the Director, Bureau of Special Education, 206 West Fourth Street, Dayton. The summer term begins June 22 and ends July 31. This bureau will send to local schools, on request of school officials, a psychologic examiner, to examine mentally deficient children, and, until the traveling budget has been exhausted, no charge will be made for this service to the schools of the state. More than forty cities in Ohio have established special classes for mentally deficient children.

OKLAHOMA

State Laboratory.—The state commissioner of public health has issued a bulletin concerning the state laboratory which, he says, has been designed to assist health officers and physicians in the diagnosis of communicable disease and to provide laboratory service for persons in the state for whom such service is not otherwise available. The state laboratory does not charge for any examination, and only tests that have a bearing on public health are attempted. The laboratory is under the direction of the state department of public health, being supervised by a physician as state bacteriologist. The state chemist also has an office in the laboratory. Water analyses are made for citizens of the state. All public water supplies must be passed on by the laboratory, and all water used by interstate carriers must be approved. Only methods approved by the U. S. Public Health Service are used in the different tests made. Communications should be addressed to the State Laboratory, Oklahoma City.

PENNSYLVANIA

Personals.—Dr. Josiah F. Reed, Harrisburg, has been appointed consulting obstetrician to the Chambersburg Hospital.——Dr. John Byers Roxby, Swarthmore, has been elected full-time professor of anatomy in the medical department of Temple University, Philadelphia, to succeed the late Dr. David G. Metheny.

County Society Postgraduate Instruction.—The officers of the postgraduate group of the Lackawanna County Medical Society, Scranton, have secured the services of Dr. William Neumann, professor of medicine, University of Vienna, to instruct the members of that society on diseases of the chest in July. The classes will continue for twenty-five days and be limited to forty persons. This group will be divided into classes of ten.

Pittsburgh Skin and Cancer Foundation.—This organization was incorporated in April, 1923, in order to make the diagnosis and treatment of cancer and skin diseases available to persons financially unable to obtain this service, to educate patients and the public in general and for statistical research on cancer as it involves this community. It is under the control of a board of directors, assisted by the Dispensary Board Association and the medical and surgical staff. The dispensary and outpatient department is at 1901-1903 Fifth Avenue, Pittsburgh. There are no hospital accommodations for patients, as yet. Patients are hospitalized when necessary, through arrangements by members of the staff, some being sent to the City Hospital at Mayview. A deep roentgen-therapy machine has recently been installed at the foundation. The president of the medical and surgical staff is Dr. Lester Hollander, who is also director of the department of skin diseases. Dr. Richard J. Behan is director of the department of cancer.

RHODE ISLAND

Hospital Report.—Six hundred and nine patients with scarlet fever were discharged from the City Hospital, Providence, last year, the largest number treated in one year. The outbreak was mild, and of this number only nine patients died, a fatality rate of 1.5 per cent.

TENNESSEE

Change of Date.—The date of the next meeting of the Tennessee State Medical Association, Nashville, has been changed from April 14-16 to April 21-23.

Protest Meeting.—A meeting, composed largely of laymen, was held in Memphis, March 1, 1925, to protest against the passage by the legislature of bills that would lower the medical standards of Tennessee. The speakers were Prof. Wharton Jones, Dr. Alfred B. DeLoach, Hon. Hardwig and Israel Peres and Capt. G. T. Fitzhugh.

Personal.—Dr. Samuel F. Strain, of the Memphis Department of Health, has been awarded the scholarship offered the Shelby County Tuberculosis Society by the Trudeau Sanatarium, Saranac Lake, N. Y.——Dr. Jarrell Penn, Humboldt, has accepted a position as company physician with a mining company at Gary, W. Va.——Dr. Fred C. Caldwell, director, branch laboratory, state department of health, Knoxville, has resigned on account of ill health.

TEXAS

State Board Election.—At the organization meeting of the new state board of medical examiners, Dallas, February 24, Dr. Horace C. Morrow, Austin, was elected president; Dr. Guy P. Sherrill, Temple, vice president, and Dr. Thomas J. Crowe, Dallas, secretary.

Medical Society to Broadcast Health News.—The Tarrant County Medical Society is arranging to broadcast health talks over the radio from the Fort Worth *Star-Telegram* Radio Station WBAP. These talks will be broadcast each Friday at 4 p. m. One period each month is to be devoted to the broadcasting of material from *Hygeia*.

WASHINGTON

Hospital News.—Articles of incorporation have been filed for the proposed Clallam County General Hospital, to be located at Port Angeles. It will be modern, with from fifty to seventy-five beds, and will cost about $100,000.

Personal.—Dr. Robert D. Wiswall has been reappointed city health officer of Vancouver.——Dr. John M. Bammert has been appointed health officer for South Bend.——Dr. Alexander H. Peacock, Seattle, has been promoted to the rank of colonel in the Medical Reserve Corps.——Dr. Hinton D. Jonez, Tacoma, has been appointed county health officer to succeed Dr. Frederick J. Cullen, Puyallup, resigned.

WISCONSIN

Personal.—Dr. Herbert C. Dallwig, Milwaukee, has been made temporary head of the county dispensary, Milwaukee, following the appointment of its former head, Dr. John P. Koehler, as city health commissioner.

Society News.—At the regular meeting of the Medical Society of Milwaukee County, March 13, Dr. Charles R. Bardeen, dean, University of Wisconsin Medical School, spoke on "Development of the University of Wisconsin Medical School," Dr. Carl A. Hedblom, professor of surgery, on "End Results of Operation for Carcinoma of the Breast," and Dr. Albert S. Crawford, associate professor of surgery, on "A Survey of the Present Situation in Regard to Spinal Cord Tumors."

PHILIPPINE ISLANDS

Supreme Court Decision Against Chiropractors.—It is reported that the supreme court, Manila, handed down a decision, March 4, that the practice of chiropractic in the Philippine Islands is illegal without the approval of the board of medical examiners, thus confirming a judgment of the lower court, which fined two chiropractors for violation of the medical laws.

CANADA

Health Journals Consolidate.—The *Canada Lancet*, established in 1866, and the *Canadian Practitioner*, established in 1875, both of Toronto, henceforth will appear as one journal, the *Canada Lancet and Practitioner*, incorporating also *National Hygiene* and the *Dominion Medical Monthly*. Drs. Adam H. Wright and Edmund E. King, and other editors of the *Practitioner*, join the editorial board of the combined journals.

Hospital News.—The reception hospital for mental and nervous diseases, which has been erected in Toronto in close proximity to the Toronto General Hospital, will shortly be ready for occupation. Dr. Clarence B. Farrar, recently medical superintendent of the Homewood Sanatorium, Guelph, has been appointed physician-in-chief.——Dr. Harvey Clare, Toronto, who has been associated with the Ontario hospitals for the insane for twenty years, has accepted the position of physician-in-chief to the Homewood Sanatorium, Guelph, Ontario, succeeding Dr. Farrar.——The Grey Nuns of Montreal are to build a modern hospital on a ten-acre site at St. Paul des Metis, Quebec, during the coming summer.—— The Colchester Memorial Hospital Trust has selected a site for a new building at Truro, N. S.

GENERAL

Society News.—The Medical Women's National Association will meet in annual conference, May 25-26, at Atlantic City, headquarters being at the Marlborough-Blenheim Hotel. ——The Western Physiotherapy Association will hold its seventh annual meeting at Kansas City, April 16-17, under the presidency of Dr. Loraine A. Marty, Kansas City. Programs may be obtained by addressing the secretary, Dr. Charles W. Fassett, 115 East Thirty-First Street, Kansas City, Mo.

American Chemical Society.—The sixty-ninth meeting of this society will be in Baltimore, April 6-10, in the Chemistry Building, Johns Hopkins University. Charles H. Herty will discuss "The Future of Industrial Synthetic Organic Chemicals in the United States," and Dr. Edwin C. White, "Dyes Used as Tests of Liver Function." There will be a symposium on "Chemistry in the Field of Microbiology," and a symposium on "The Place of the Electron in the Teaching of Chemistry."

National Association of Hotel Physicians.—The first meeting of this association will take place at Atlantic City either prior to or after the meeting of the American Medical Association. It is being organized now with the object of (1) raising the standard of hotel physicians, and (2) raising the standard of hotel equipment for emergency work. The association will include house physicians in large hotels throughout the country, with corresponding members among steamship surgeons and foreign hotel physicians.

New Journal.—The first number of a new journal, *Archiv für experimentelle Zellforschung besonders Gewebezüchtung*, will appear this month. The editor is Dr. Rhoda Erdmann, with whom will be associated editors representing various countries, among whom will be Drs. Montrose T. Burrows, St. Louis; Ross G. Harrison, New Haven, Conn., and Warren H. Lewis, Baltimore. The new journal will be devoted to the field of the experimental study of cells and tissues, with special reference to tissue culture. Papers written in English, French, Italian and German will be accepted. The journal will be published by Gustav Fischer, Jena, Germany.

Hebrew University Opens.—The new Hebrew University on the Mount of Olives, Jerusalem, of which the cornerstone was laid during the World War, will be formally opened by the Earl of Balfour, April 1. Professor Einstein and Chaim Weizman will accompany Lord Balfour. Jewish physicians in the United States have organized under the chairmanship of Dr. Nathan O. Ratnoff, president, Jewish Maternity Hospital, New York, to erect the medical college and hospital of the university, for which 10 acres have been purchased on Mount Scopus. The roentgen-ray laboratories and the research institute in microbiology are already functioning.

Certification of Cure of Leprosy.—The conditions under which lepers are released from the government leprosarium at Carville, La., the national home for lepers, include special observation for one year, monthly bacteriologic examinations to show that the lepra bacillus is absent from the tissues and the certification of cure by a board of three medical officers stationed at the hospital. Four lepers, who went to the Carville home a few years ago, have recently been discharged. They are no longer a menace to public health. New patients received at the leprosarium last week include eleven patients from Florida and seven brought from California. There are at present 236 leper patients at Carville.

American Society for the Control of Cancer.—At the annual meeting of this society, New York, March 7, Dr. Howard Canning Taylor, professor of clinical gynecology, College of Physicians and Surgeons, and president of the American Gynecological Society, was elected president; Dr. Francis Carter Wood, New York, vice president; Thomas M. Debevoise, secretary, reelected, and Calvert Brewer, treasurer, reelected. The managing director, George A. Soper, Ph.D., recommended that during the coming year work be continued along present lines; that "cancer weeks" be held generally; that efforts be made to enlist the cooperation of dentists, nurses and social workers; that the cooperative effort of the Connecticut State Medical Society, the Connecticut Public Health Association and the Connecticut State Department of Health and the American Society for the Control of Cancer in a three years' campaign be extended to other states, and that the Pennsylvania survey be duplicated elsewhere.

Interstate Postgraduate Assembly Clinic Tour.—This clinical tour of American physicians to Canada, the British Isles and France leaves Chicago, May 17, and sails from Montreal, May 23. Dr. Charles Mayo, Rochester, Minn., is president of the tour, and Dr. W. B. Peck, Freeport, Ill., managing director. The *Ausonia* of the Cunard Line and the *Doric* of the White Star Line have been chartered to take the physicians aboard. Special features of the London program include conferring honorary memberships in this association on the Duke of York; Rt. Hon. Austen Chamberlain, minister of foreign affairs; Rt. Hon. Neville Chamberlain, minister of health; Sir Alfred Bower, lord mayor of London; Lord Desborough, chairman of the Pilgrims Society; Sir Humphry Rolleston, president, Royal College of Physicians; Sir John Bland Sutton, president, Royal College of Surgeons; Sir St. Clair Thomson, president, Royal Society of Medicine; Sir Holburt J. Waring, chairman of Medical Program Committee; Sir John Y. W. MacAlister, secretary, Royal Society of Medicine. Receptions and luncheons will be given by the lord mayor of London, the presidents of the Royal Societies of Medicine and Surgery, the English-Speaking Union, the Pilgrims Society, the American Chamber of Commerce and members of the British government. Special features of the Dublin program include a reception committee formed by the provost of Trinity College, the president of University College, the president of the Royal College of Physicians, the president of the Royal College of Surgeons, the president, Royal Academy of Medicine, and the president, Association of Surgeons, which will entertain the assembly on the night of its arrival. The governor general of the Irish Free State will invite the assembly to a garden party, June 12. The Hon. Lady de Courcy Wheeler is organizing a ladies' committee to take care of the wives of the visiting physicians while the latter are at work. Special features of the Belfast program include a garden party given by Sir James and Lady Craig, prime minister of Ireland, at Stormont Castle. The Paris program includes receptions by the Academy of Medicine, the Municipal Council of Paris, a reception and banquet by the Inter-Allied Assembly and a reception by Professor Tuffier. Honorary memberships will be conferred on distinguished statesmen, soldiers and citizens of France. The total number of physicians registered to date is 375, the entire number including members of physicians' families, 615.

Clinic arrangements have been made to accommodate 500 physicians in all the clinic cities throughout the tour. There is no restriction made in regard to members of physicians' families, as they do not require clinic space. There are no restrictions as to the number of physicians or members of their families coming from any single state. For further information, write Dr. W. B. Peck, Freeport, Ill.

FOREIGN

Leeuwenhoek Medal to Be Awarded to d'Herelle.—It is announced that the medal awarded by the Amsterdam Academy of Sciences is to be given this year to Dr. F. d'Herelle for his discovery of bacteriophagy. This medal is given every tenth year to the person considered to have advanced most the progress of science in the preceding ten years. The other recipients have been Ehrenberg, 1875; Cohn, 1885; Pasteur, 1895; Bejrinck, 1905, and David Bruce, 1915. This is said to be the first official recognition of the discovery of the bacteriophage.

China Medical Association.—More than 200 physicians practicing in the Far East attended the biennial meeting of the China Medical Missionary Association at Hongkong University, Hongkong, in January. There were delegates from Mukden, Peking, Tsinan, Hankow, Shanghai, Canton and many other cities of China, all of whom were the guests of the Hongkong and China Branch of the British Medical Association. About 150 papers were read in the eleven sections. There was a symposium on leprosy in which the results of a survey of leprosy in China were reported; a symposium on hookworm; one on cataract; another on racial characteristics, and a session in the public health section wholly devoted to school hygiene in China. The research committee reported, among other things, on the pharmacology of Chinese and other drugs and on a study of the nutrition and growth of the Chinese. The Council on Medical Education rated the Peking Union Medical College Class A, and provisionally recognized four other medical colleges in China. There were exhibits of public health charts and posters and a commercial exhibit. The most important action of the association was a change in the constitution, unanimously adopted, by which its name becomes the China Medical Association. A special division is provided to be devoted to the interests of medical missions.

Deaths in Other Countries

Sir **Anderson Critchett,** London, surgeon-oculist to the king, February 9, aged 80.——**Nicholas Kulchitsky,** emeritus professor, Kharkoff University, Russia, formerly a Russian senator and minister of education, on the staff of the anatomy department, University College, London, January 29, aged 69.——**Edward E. Klein,** former lecturer on histology and bacteriology, St. Bartholomew's Hospital Medical School, London, author of "Elements of Histology" and other works, February 9, aged 80.——Dr. **E. Wörmser,** Basel, author of numerous works on gynecology, aged 52.——Dr. **R. Eden,** professor of surgery at Freiburg, a pioneer in plastic surgery, aged 43, killed in a bicycle accident.——Dr. **Marcel Bloch,** Paris, laboratory chief for dermatology and frequent contributor to medical periodicals, often in collaboration with P. E. Weill.——Dr. **P. Magny,** Paris, senator and inspector general of the asylums of the Seine district.——Dr. **J. Socquet,** Paris, president of the French Medicolegal Society, aged 73. For more than thirty years consultant to the French courts.——Dr. **G. Gaglio,** professor of materia medica at Rome.——Prof. **August von Wassermann,** director of the Kaiser Wilhelm Institute for Experimental Therapy and professor of internal medicine, University of Berlin, originator of the Wassermann test; March 16, aged 59.

CORRECTION

Value of Cooperation Between Internist and Surgeon.—In the article by Dr. Donald C. Balfour in this issue, the matter beginning at the foot of the first column on page 877 and continuing through the first six and one-half lines of the second column should read: "From Jan. 1, 1924, to March 7, 1925, I performed partial gastrectomy on eighty patients, with one death." The second paragraph in the second column on page 877 should begin: "The eighty cases in the series were: gastric cancers, thirty-six; gastric ulcers, twenty-eight; recurring gastric ulcer, one; gastrojejunal ulcers, nine; duodenal ulcers, four; jejunal ulcer, one, and malfunctioning gastro-enterostomy, one. The one death may be attributed to an ill advised choice of operation."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 27, 1925.

Sir James Mackenzie's Scientific "Last Will and Testimony"

Immediately before his death, Sir James Mackenzie wrote a letter to a friend which was never posted and was found after his death among his papers. It is a veritable scientific "last will and testimony." The following is the gist: "When I left London I dared not tell any one the real reason, for it would have been looked on as a piece of folly. For years I had been gradually becoming convinced that the whole tendency of research was on wrong lines; it was devoid of fundamental principles, was haphazard, and could not supply the kind of knowledge that would enable us to solve medical problems. I saw that there was undoubtedly a great fundamental principle which, if discovered, would do for medicine what the atomic theory has done for chemistry. With the object of searching for this principle I undertook, at the age of 65, the heavy burden of starting an institute for the purpose of this quest. I scarcely expected to discover the principle, but hoped to lay the basis of methods that would, in course of time, achieve this success. I am now, however, of the opinion that my co-workers and myself have succeeded, and that it only wants time and experience to start a revolution in every department of medicine.

"We recognized early that the cells of an organ are controlled and regulated by impulses generated by the cells of other organs, and conducted to and fro by structures specially evolved for the purpose. In the production of any manifestation of activity, be it a symptom of disease or an experimental reaction, the source of the impulses is in structures other than those which exhibit it. Thus, all symptoms, apart from those arising as a consequence of structural changes, are due to the disturbance of some element intervening between the cells of the body which give rise to an impulse and those which receive it and carry it into effect.

"We proceeded next to analyze the elements of this reflex arc. We found that a living cell is never at rest, but is always either discharging energy, i. e., performing its function, or renewing it. The discharges are momentary, whereas the time of renewal can be varied. Thus, cell activity can be altered in only two ways—by an increase or by a decrease in the period occupied by the process of renewing energy. Heat increases and cold retards the rate of renewal of cellular energy. When the living cell discharges its energy—i. e., performs its function—it discharges also an impulse that affects neighboring cells and either hastens or delays the process of the renewal of energy in them. To these effects the names 'stimulation' and 'inhibition' respectively apply.

"But we found, in addition, that the cell impulse exercises another influence; namely, control. In certain cells this power of control is highly developed, examples being 'the pacemaker' of the heart. Certain nerve cells possess the same power. It is by the influence of these structures that the organs of the body work harmoniously together. Symptoms, therefore, are due to agents which either increase or decrease the activity of cells or which interfere with the normal control exercised by certain cells over others.

"When any symptom is under consideration, I ask myself: Is this symptom evidence of increased or decreased activity or of uncontrolled or irregular activity? To answer this question it is necessary, as indicated above, to know accurately the 'chain' of structures intervening between the cells originating an impulse and those receiving and giving effect

to it. Unhappily, such knowledge is nowhere available. The peculiar nature of the cell impulse has not been recognized. It has been assumed that electricity could take its place; the fact that electricity is an abnormal stimulus and so can produce only abnormal results has not been recognized. The electrical stimulus cannot exercise the influence of control which is essential in the normal functioning of every organ.

"When an organ, such as a muscle, is paralyzed, i. e., has lost its 'influence of control,' its activity takes the form of 'fibrillation' instead of a strong harmonious contraction of all of them at once. When the 'pacemaker' of the heart ceases to exercise its control, not only are the auricles uncontrolled, but another regulating structure, the 'auriculoventricular node,' is also set free from control. The latter then begins to receive impulses from other than the normal sources, and various derangements of heart rhythm follow. The discovery of the 'regulating structures' of the heart revolutionized our knowledge of the action and diseases of that organ. Similar knowledge about the regulating structures of the other organs would, if we possessed it, likewise revolutionize knowledge about them."

A National Museum of Australian Zoology

A national museum analogous to the South Kensington Museum in London and the Smithsonian Institution in Washington has been established at Canberra, Australia, and will become the world's center for the study of the unique fauna of Australia. This step has been taken none too soon, for the fauna of Australia, in consequence of the introduction of civilization and of European species, is rapidly disappearing. It is hoped that physicians throughout Australia, realizing that the fight is against time, will help the museum in every way. The study of the Australian fauna from the standpoint of comparative anatomy was begun in 1788 by Dr. John White, the first Australian surgeon general and a friend of John Hunter, but little further was done until recent years. It is computed that within a period of twenty years many of the Australian mammals will have become extinct. To further their study from the comparative standpoint, Dr. Colin Mackenzie, founded in Melbourne the Australian Institute of Anatomical Research, which includes a museum and laboratory. In 1923, Dr. Mackenzie made a gift to the government of his laboratory equipment and his collection of museum specimens and living animals. This valuable collection will form the nucleus of the National Museum, of which Dr. Mackenzie will act as director.

PARIS

(From Our Regular Correspondent)

Feb. 16, 1925.

Herpes Zoster in Relation to Chickenpox

The relations of zona, or herpes zoster, to chickenpox were the subject of several communications and an interesting discussion at one of the recent meetings of the Société médicale des hôpitaux of Paris. Some new facts were brought out which throw light on the question. The relations that connect chickenpox with certain cases of zona, pointed out in 1892 by von Bokay and again discussed by him in 1919, have been the subject of many communications in France since Netter, in 1920, brought the facts to the attention of the academy, and the frequency of the cases reported has had the effect of strengthening the view of the authors who hold that the diseases are identical.

Aviragnet, Hubert and Dayras reported two interesting observations: In the first case a patient was affected with a very intense type of chickenpox, and on the second day of the eruption there appeared several groups of lesions typical of intercostal zona, which were accompanied by sensory disorders characteristic of this affection. It is evident, therefore, that the chickenpox virus was manifested clinically by two eruptions, one a typical chickenpox eruption and one that of herpes zoster or zona. In the second case, a typical zona was followed, fourteen days later, by the appearance of chickenpox in the patient's two brothers, neither of whom had been exposed to any outside contagion. A study of these cases furnishes evidence for the varicelloid nature of certain zonas associated with chickenpox and of certain zonas that develop under isolated conditions.

During the last three years, Netter has collected a large number of similar observations. In nine cases, he has observed the coexistence in the same patient of a generalized eruption of chickenpox and an eruption of herpes zoster. These facts are in themselves interesting in view of the opinion of the two diseases that he defends, but he does not regard them as so significant as the instances in which zona and chickenpox succeed one another in two subjects who have been in contact momentarily or for a prolonged period. Of 115 such observations collected, chickenpox followed zona in 100 instances and preceded it in fifteen cases. This large total meets the objections of the opponents of Netter, who have emphasized the alleged rarity of such coincidences. The large number of instances thus collected shows that the findings cannot be due to mere chance. In the 115 cases the interval that separated the first manifestation (zona or chickenpox) from the second (chickenpox or zona) was from thirteen to twenty-one days—more commonly from thirteen to fifteen days, which corresponds to the incubation period of chickenpox. In seventeen instances, chickenpox appeared simultaneously in two or three subjects, a fact which makes more probable the intervention of the first patient. Among the opponents of Netter, Comby has been the most ardent. In his opinion, chickenpox may engender zona but only in the same manner that zona may be engendered by many other infections, such as pertussis, measles, scarlet fever, typhoid and especially tuberculosis. Zona, Comby holds, is only a special type of neuritis which may be unleashed by many different causes; he refuses absolutely to admit that zona and chickenpox are due to the same pathogenic agent, or that zona can engender chickenpox. In the reported cases, what evidence is there that outside contagion did not occur in some unperceived manner? Furthermore, chickenpox does not immunize a person against zona nor zona against chickenpox. Yet chickenpox is a disease that confers almost perfect immunity. In Comby's opinion, all the published cases are explainable as chance coincidences, the number of which is large only because of the wide incidence of chickenpox. These conclusions seem, however, seriously undermined by the serologic studies that Netter has carried out in collaboration with Mr. Achille Urbain of the Pasteur Institute. Girard, Kolmer, Dold and Langer had previously shown that the blood of subjects affected with chickenpox fixes the complement in the presence of the chickenpox antigen and that this reaction is specific. Netter and Urbain have established that the antigen present in the crusts of chickenpox lesions fixes the complement on contact with the serum of subjects affected with zona. Likewise, the antigen present in the scales of zona lesions fixes the complement on contact with the serum of subjects with chickenpox. In three patients, Netter established the presence of chickenpox antibodies in the cerebrospinal fluid (one of these patients with zona had caused two cases of chickenpox through contagion; the two other patients presented a coincidence of chickenpox and zona). The varicelloid nature of certain zonas appears therefore well established by serologic experiment as well as by clinical observations. The fixation reaction allows us furthermore to generalize and to apply this idea to the vast majority of zonas. The complement fixation test was positive in seventy-

six out of seventy-eight subjects examined affected with zona. Netter concludes, therefore, that zona is not a specific infectious disease as Landouzy contended; it is more frequently, if not always, a manifestation of chickenpox infection.

Puericulture and the Council of the Paris Faculté de Médecine

Recently, at the instance of their colleague Professor Pinard, the deputies present at a morning session of the chamber voted without discussion the funds necessary for the creation of a chair of puericulture at the Paris Faculté de médecine. The council of the faculty had no knowledge of the proposed legislation. At a special meeting held to discuss the matter, the faculty expressed itself frankly against the creation of the new chair that the unexpected vote of parliament threatened to foist on it. The frank declaration that the council of the faculty drew up and caused to be placed in the hands of the members of the chamber and the senate follows:

> The professors of the Faculté de médecine of the University of Paris have taken note, at a special meeting, of the plan recently submitted to parliament of creating, as an additional item to the budget, a chair of puericulture at the Faculté de médecine. They esteem it their duty therefore to call the attention of the members of parliament and the government to the fact that the proposed chair is not needed and would constitute a duplication of effort owing to the similar scope of the work of the chair of hygiene and the clinical aspects of early childhood, which was established, Oct. 20, 1914, by the *Pouvoirs Publics* (public authorities) to provide instruction in puericulture. They would add that this subject is being taught also in connection with kindred branches in three other departments (the chairs of obstetrics, of diseases of children, and of hygiene) and likewise by the already existing school of puericulture at the Faculté de médecine. At this time when the university is endeavoring to practice needed economy in the general interests of the country and as demanded by the public authorities, the professors of the Faculté de médecine protest against the purposeless expenditure of money for the object contemplated.

Professor Marfan, whose ability in matters pertaining to puericulture is universally recognized, has been the incumbent of the chair of hygiene and the clinical aspects of early childhood since its foundation. Futhermore, the Ecole de puériculture, a foundation which the University of Paris owes to the liberality of Americans, is a model institute, admired and praised by all. It is functioning actively, and the instruction that it gives does not need to be supplemented by the establishment of a new chair. That is the present status of the question. The appropriation voted by the chamber will be devoid of effect unless it is confirmed by the senate, which has not yet voted on the question. It is to be hoped that the senate will side with the opinion of the faculty and that its vote will sanction the resolution of the faculty. It is of course true, as Minister François Albert brought out in a recent short note on the subject in the daily press, that the creation of a chair of puericulture is only a very small item in the total budget for public instruction. While it is true that this question has caused some stir in medical circles, the reasons therefor are possibly not entirely of an economic order; there is doubtless a deeper underlying cause. Fears are entertained, and probably are justified, that the action of the chamber may create an unhappy precedent and may open the door to abuses which must be foreseen and prevented. It is dangerous to allow new chairs and new professors to be imposed on the faculty as has happened only recently. It is true that it is parliament that votes the necessary appropriations for the carrying on of instruction at the Faculté de médecine, and it is, in the last analysis, the minister who appoints the professors; but it is nevertheless desirable that, through the resolutions that it passes, the faculty shall remain, to a certain extent, the master of its destinies. If that were not the case, the decisions adopted in its behalf without its knowledge or consent might not always be for the best interests of education, and political support might be given to matters of a much less harmless nature than the proposal to create a chair of puericulture.

MADRID

(From Our Regular Correspondent)

Feb. 13, 1925.

Havana Medical Institutions

At the recent Cuban Medical Congress, the National Academy of Medicine of Madrid sent as delegates two of its members, Dr. Codina-Castelvi, physician in the Madrid General Hospital, and director of the Valdelatas Sanatorium, and Dr. Mollá, professor of surgery in the Madrid Medical School. On his return, Professor Mollá gave a lecture on conditions at Havana. Cuban medical science is influenced by its vicinity to the United States and its spiritual connection with France. Until a short time ago, the French gained by the feeling against Spain which the war of independence left behind, and Spain was not included in the itinerary of physicians coming to Europe. A change is already apparent, and Cubans are becoming acquainted with our medical achievements. At present, the textbooks used in the Havana Medical School are the same as those in use in Madrid.

The enrolment in the Havana Medical Schools is about 500 in the first year, and 200 in the advanced classes. However, there is not in Cuba, as happens in Spain, the so-called "free" teaching; namely, students who enroll in the medical school and thus enjoy the privileges of being examined there, although studying somewhere else. The Havana Medical School is very well equipped. The curriculum is practically the same as in Madrid, but teaching is better organized. The school has forty professors, twice as many as in Madrid. There are two professors of anatomy, as in Madrid, but they have in addition two professors of physiology, two of general pathology, and two of topographic and operative anatomy. There is also a chair of experimental pathology, and they have just organized one for tuberculosis. The whole course comprises seven years. An additional year is not required, as in Spain, in order to receive the doctor's degree.

The Island of Cuba is the second nation in wealth in the world, and most of its budget is devoted to public instruction and public health work. As it has no navy, and hardly any army, there are plenty of funds for welfare work. Havana, with less than half as many inhabitants (400,000), has as many hospitals as Madrid (more than 1,000,000 population). The Calixto García Hospital is really in the hands of the medical school. If we take into account all its annexes, it occupies twenty-four buildings. The Mercedes Hospital dates from Spanish times. It is a private hospital, and its roentgen-ray and radium departments are as complete as any in the world. The Municipal Hospital can send its patients to other hospitals when necessary. Nurses receive $150 a month, physicians $400, and the director $600. One must also mention the tuberculosis dispensary and the tuberculosis sanatorium with its twenty pavilions, and, finally, the hospital for advanced cases of tuberculosis.

The Spanish colony is well represented in all social and welfare activities. There are 75,000 Spaniards in Havana, or twice as many as all the other foreigners put together. There are 5,000 Asiatics, 10,000 Americans, and also quite a number of Frenchmen and Italians. The "Centro (Club) Gallego" for natives from Galicia, and the Centro Asturiano, have a membership of more than 50,000. The dues are $2 a month, and this income permits such societies to maintain properly equipped sanatoriums. The Centro Asturiano is planning a new building costing more than $3,000,000. Its sanatorium is called Covadonga. In addition to well-to-do patients, who must pay for their assistance, 600 patients are constantly treated free. The Centro de Dependientes has very complete hydrotherapy and physiotherapy departments.

As regards public health, there is no smallpox in Cuba. Vaccination is compulsory and actually enforced. No one is

allowed to land unless he has been vaccinated previously. In seventeen years, there has not been one case of yellow fever in Cuba. Malaria is also under control, although there remain still some foci. The campaign against typhoid fever is also pushed. Typhoid in Cuba has the peculiarity that its onset is abrupt, but its course brief. Public health policing is in charge of a visiting nurse corps directed by health physicians. A section devotes itself especially to tuberculosis prevention. One of the most interesting activities concerns infant welfare. Milk is furnished free to the children, and there is also a dispensary and consulting station for pregnant women. The death rate in Cuba is less than 16 per thousand inhabitants.

When Professor Mollá ended his lecture, a Cuban physician who happened to be present thanked him. Two army physicians also spoke. One recalled that of thirteen physicians in his class who had joined the army, seven had died in Cuba from yellow fever, and the other said that all his classmates had also died there.

Smallpox

Smallpox has reappeared in Madrid, and three months ago there were several cases in a suburb, Puente de Vallecas. The sanitary authorities became alarmed. The patients were isolated in the pesthouse, and a compulsory vaccination campaign was started. In about a month more than 300,000 persons submitted of their own accord to this preventive procedure. The manufacturing establishments were unable to keep up with the demand, and as a result, the quantity of vaccine proved superior to its quality. A number of inflammatory reactions thus occurred in those vaccinated. Patients with old skin diseases had recurrences. The vaccine "took" in a number of cases far superior to the usual percentage. Many swellings appeared, and even lymphangitis. In short, the vaccine was infected by pus germs, but the sanitary authorities took no notice. It has been interesting to check the efficiency of this infected vaccine against smallpox. In the original smallpox focus, in Puente de Vallecas, where the disease soon disappeared following the enforcement of isolation and general vaccination, new cases are now appearing. A proof of this recrudescence is the increase of cases in the frame barracks of the San Juan de Dios Hospital. The Madrid council has confirmed this in its last mortality report for January. In mentioning some new deaths from smallpox, it is stated that the victims belong to the most ignorant social classes. However, a proof that patients do not belong exclusively to this class came to light shortly afterward. A foreign ambassador took sick with smallpox a few days after presenting his credentials to the king. This diplomat was stopping at a hotel. After the usual prodromes, a typical smallpox rash appeared. The problem was rather acute, both for him and his physician, there being no question that the hotel would expel the patient as soon as the news spread. The only place available was the San Juan de Dios Hospital, with its wooden barracks. As soon as the director general of public health, Dr. Murillo, heard of the case, immediate action was taken. Two hours after the diagnosis was confirmed, the patient was already in the newly built King's Hospital for Infectious Diseases. The ambassador has thus been the one to inaugurate this splendid building, which will eventually include twenty-two pavilions. So far only four have been built, one of them for laboratory purposes. Each pavilion has room for a great many patients. The new hospital has solved a pressing problem, so far as taking care of infectious patients is concerned. Heretofore, such cases had to be distributed among the few hospitals, and when the disease was very infectious, the patients were taken to the pavilions of the San Juan de Dios Hospital. The King's Hospital was precisely the one directed by Dr. Marañón, who is an authority in the diagnosis and treatment of infectious diseases. Because of recent political changes, Dr. Marañón resigned the position, in order not to have any contact with the army directory.

BERLIN

(From Our Regular Correspondent)

Feb. 21, 1925.

Malaria Treatment of General Paralysis

In the department of tropical medicine of the German colonial congress, Director Bratz, and Schulze, head physician, presented communications recently detailing their observations in the municipal psychopathic hospital at Dalldorf, while Prof. Dr. A. Plehn reported on the cases in which he had given treatment in the municipal hospital at Urban. Malaria inoculation has been applied at Dalldorf to 250 patients with general paralysis since May, 1922. This group included severe cases of long standing in which improvement seemed very doubtful. Concerning the first hundred cases in which malaria treatment had been given more than fourteen months previously, Schulze reported that forty-four of the patients had so far recovered as to be able to resume the full duties of their former occupations; twelve others had improved sufficiently to be allowed to return home, but could not perform the work they had done previous to hospitalization. Some of the latter had to be returned to the institution, where they could be employed in workshops. In twenty-seven cases, the malaria treatment was not successful; among these, however, were some patients in whom the malaria treatment had to be discontinued on account of the onset of other diseases. Seventeen of the hundred patients had died, but in no case was the malaria treatment the cause of death. In comparison with the year 1913, the records for 1923, the year in which the malaria treatment was carried out, the average duration of the treatment of patients had decreased by seventy-nine days, and the mortality had diminished from 79.3 to 44.8 per cent., an improvement of 34.5 per cent. As it became evident that the results were better the earlier the malaria treatment was begun, there is reason to hope that, in time, the foregoing records will be improved still further by beginning treatment in earlier stages of the disease. The malaria treatment should not be undertaken other than in hospitals. The inoculation of malaria is for the patient by no means a slight intervention, for it decreases his body weight and diminishes his strength considerably. The course of the malaria must, therefore, be carefully controlled both clinically and microscopically, in order that the treatment may be promptly interrupted if the patient's life seems endangered. Patients who are highly feverish must be under constant supervision of the nurse, even at night, since the sudden onset of a delirium is to be feared at any time. Care must also be taken that the malaria does not spread from patients to others in their entourage. The improvement in the patient's mental condition could not be noted immediately after the conclusion of the malaria treatment, but began to manifest itself slowly. Sometimes, however, rather sudden disappearance of the delusions of greatness was observed.

Just how the action of inoculated malaria on general paralysis is brought about has not yet been definitely explained. Some hold that it is not a specific action but that the high fever that is always associated with the inoculated malaria constitutes the healing principle. Remarkable cures following other diseases attended by high fever have been observed; for example, the healing of tumors after a severe attack of erysipelas. Others think there is probably a genuine antagonism between the causative agent of malaria and the spirochetes of syphilis, and point out the fact that in tropical countries in which much malaria occurs the natives,

even though a syphilitic infection remains untreated or is inadequately treated, very rarely develop general paralysis. Still others believe that the malaria parasites, which, as is well known, are inclined to seek lodgment in the most minute blood vessels of the brain, make these vessels more permeable and thus make it possible for protective substances from the blood to enter the brain tissues in which the spirochetes of syphilis have taken up their abode. Pathologic researches on brains, carried out by the physicians of the psychopathic hospital at Dalldorf, seem to lend support to this view.

Finally, it may be mentioned that malaria inoculation presents interesting problems in the field of tropical medicine. Prof. Dr. Claus Schilling, the director of the department of tropical medicine at the Robert Koch Institute for Infectious Diseases, discussed this subject at the colonial congress. The parasites of malaria propagate in man asexually, but in the Anopheles mosquito they pass through a sexual development. From the zoologic standpoint, the mosquito constitutes the main host for the parasite of malaria, while man is the secondary host. On transmission of the parasite to man, generations of parasites that have developed sexually in the mosquito are succeeded by generations of asexual development in man. In inoculated malaria only asexually developed parasites are transmitted, and it is peculiar that no exhaustion of the strain occurs. Although one strain of malarial parasites used in Dalldorf, during the period of two years or more, has passed through more than fifty generations, and another strain has passed through more than thirty generations, the parasites have thus far retained without recognizable change their febrifacient and other qualities.

Death of Professor Hirschberg

The death of the ophthalmologist Prof. J. Hirschberg, February 16, at the age of 81, has been announced. Only three weeks ago, I saw him in good health at the meeting of the Berlin medizinische Gesellschaft, and was impressed with his mental vigor. A few days later he suffered a severe gastric hemorrhage, but he seemed to have recovered rapidly. A second hemorrhage, however, resulted in his death. The cause of the hemorrhage could not be definitely established. Hirschberg was almost a biologic prodigy by reason of the fact that he preserved an unusual capacity for achievement long after he had crossed the threshold of old age. A few years ago, he delivered in classic style, standing and without notes, the memorial address, an hour in length, in honor of Albrecht von Graefe. I asked myself at the time the question whether he was speaking extemporaneously or was delivering from memory a prepared speech. Later, when the address was published, its perusal revealed the fact that it agreed word for word with the address as delivered, so that I assume that he prepared his address in advance and delivered it from memory with astonishing accuracy. When his eightieth birthday was celebrated, something more than a year ago, he replied at length to the numerous speeches delivered by the various deputations sent to do him honor and gave some reminiscences of his earliest professional activities. As circumstances were, he was fortunate that his fatal illness did not take the form of a long-drawn-out sickness.

Hirschberg's name is well known outside of Germany, so that I can confine myself to mentioning only a few incidents in his life. He early became an assistant of Albrecht von Graefe. In 1870, at the early age of 27, he became a privatdozent at the University of Berlin. In fact, his whole academic career was enacted in Berlin. That he was never elevated to the rank of head professor (ordinarius) in his chosen subject may be due to the antisemitic prejudices that unfortunately often influence medical faculties in Germany, or it may be sufficiently explained also by certain peculiar personal qualities that Hirschberg displayed. He was fully conscious of his standing as a man of learning and as an investigator in his special branch of knowledge, and the way he gave expression to this consciousness might have given offense to some. The introduction of the electromagnet is one of his most important achievements. His numerous textbooks and treatises give evidence of his broad general knowledge, and are characterized by an unusual grasp of ancient and modern foreign languages and ancient and modern history. His "Geschichte der Augenheilkunde" has never been equaled, which will be readily understood when it is recalled that very few understood the oriental languages as did he; for a knowledge of Arabian, with which he was especially familiar, is indispensable for one writing the history of ophthalmology. He alone was also particularly fitted to prepare a dictionary of ophthalmology. His knowledge of languages put him in a position to derive great benefit from foreign travel, and his extensive tours were fruitful of articles that awakened wide interest. With Hirschberg, German medicine has lost an important exponent of a glorious past.

Death of Heffter

Prof. Dr. Arthur Heffter, who up to last fall had served as head professor at the University of Berlin and as director of the Institute of Pharmacology, died, February 8, at the age of 65. Born in Leipzig in 1859, he devoted himself at first to chemistry but later went over to medicine. He served for a time at the University of Strasbourg, in the institute under the direction of Schmiedeberg, the founder of modern pharmacologic research. He then returned to Leipzig, where he chose a university career and in 1897 was appointed assistant professor (professor extraordinarius). After serving for a short time as the director of the pharmacologic department in the Imperial Bureau of Public Health, he was appointed finally, after short periods spent in Bern and Marburg, in 1908 as the successor to Liebreich at the University of Berlin. His scientific activities centered mainly about the field of physiologic chemistry. He published also a number of valuable treatises from the special field of pharmacology and toxicology. His researches on chronic lead poisoning have become generally known; also on the effect of boric acid as a preservative of foodstuffs. He proposed also a method for the demonstration of arsenic in hair, which has proved of practical value in legal medicine. His work on the writing of medical prescriptions and his large handbook of pharmacology, which is not yet completed, serve didactic purposes.

Decrease in Medical Students

Since the winter semester of 1922-1923, the total number of medical students has decreased by 31 per cent. For the winter semester, 1922-1923, the total enrolment was 13,489; for the winter semester, 1923-1924, 10,837, and for the summer semester, 1924, only 9,316.

Marriages

Charles Reed Gennaria, Trevorton, Pa., to Miss Esther J. Weiss of Wilkes-Barre, January 10.

Joseph E. Welker, Kansas City, Mo., to Miss Rita Lee of Gilford, Conn., in December, 1924.

Martin D. Westley, Cooperstown, N. D., to Miss Margaret Hutchinson of La Moure, January 1.

Joseph R. Gingold, Albany, N. Y., to Miss Mable Woldine Rosenfield of Clinton, Mo., recently.

Leopold Clarence Cohn to Miss Blanche A. Frensdorf, both of Baltimore, March 4.

Deaths

William Nesbitt Armstrong, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1898; formerly on the staff of the Lock Haven (Pa.) Hospital; at one time city physician, coroner and member of the board of health of Lock Haven; served in the M. C., U. S. Army, during the World War; aged 53; died, February 21, of arteriosclerosis and nephritis.

James Edward Kelly, New York; L.R.C.S., Ireland, 1868, L.K.Q.C.P., Ireland, 1876, and F.R.C.S., Ireland, 1878; formerly professor of anatomy and surgery, New York Post-Graduate Medical School; on the staffs of the City, Gouverneur and French hospitals; aged 80; died, February 28.

Gilbert McLeod, Carthage, N. C.; University of Maryland School of Medicine, Baltimore, 1882; member of the Medical Society of the State of North Carolina; for many years a county commissioner, county coroner and county health officer; aged 67; died, February 1, following a long illness.

Hawkins Davenport Westmoreland, Huntsville, Ala.; Vanderbilt University Medical Department, Nashville, 1892; member of the Medical Association of the State of Alabama; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 51; died, February 22.

William Joseph Cruikshank ✠ Brooklyn; Medical Department of the University of the City of New York, 1880; founder and president of the Brooklyn Cardiological Society; on the staffs of the Wyckoff Heights and Broad Street hospitals; aged 65; died, March 3, of pneumonia.

James Whitman Ousley, Kansas City, Mo.; Bellevue Hospital Medical College, New York, 1898; medical director of the Punton Sanitarium; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 51; died in February, at St. Luke's Hospital.

Thomas J. Kagey, Newport News, Va.; Jefferson Medical College of Philadelphia, 1904; member of the Medical Society of Virginia; served in the M. C., U. S. Army, during the World War; aged 44; died, February 26, at the Riverside Hospital, of cerebral hemorrhage.

Howland Madison Flower, Toledo, Ohio; Chicago Homeopathic Medical College, 1895; member of the Ohio State Medical Association; served in the M. C., U. S. Army, during the World War; aged 55; died, February 28, at the Mercy Hospital, following an operation.

Henry L. Wilson, Racine, Wis.; University of Illinois College of Medicine, Chicago, 1895; formerly health officer of Racine; on the staffs of the Oak Forest (Ill.) Infirmary and the Roseland Community Hospital, Chicago, where he died, February 26, of heart disease.

Howard Fletcher, Warrenton, Va.; Johns Hopkins University Medical Department, Baltimore, 1900; member of the Medical Society of Virginia; served in the M. C., U. S. Army, during the World War; aged 49; died suddenly, February 26.

Benjamin Emmett Kendig, Salunga, Pa.; Medical Department of the University of the City of New York, 1874; member of the Medical Society of the State of Pennsylvania; aged 87; died, February 21, of cerebral hemorrhage.

Thomas Herbert Young ✠ New Haven, Conn.; Yale University School of Medicine, New Haven, 1895; clinical instructor of ophthalmology at his alma mater; aged 55; died, February 22, at the New Haven Hospital.

Elijah Warwick Tidd ✠ Stockdale, Ohio; Ohio Medical University, Columbus, 1893; president of the Pike County Medical Society; served in the M. C., U. S. Army, during the World War; aged 55; died, February 26.

Augustus J. Bietz, Ravenna, Ohio; College of Physicians and Surgeons, Baltimore, 1880; member of the Ohio State Medical Association; aged 67; died, February 22, at the Portage County Hospital, of septicemia.

Arago Joseph Guck, Brooklyn; Medical Department of the University of the City of New York, 1890; member of the Medical Society of the State of New York; aged 71; died suddenly, March 1, of heart disease.

Harry Homer Gessler, Graystone Park, N. J.; Maryland Medical College, Baltimore, 1905; formerly on the staff of the New Jersey State Hospital; aged 44; died, Dec. 27, 1924, at Indiana, Pa., of tuberculosis.

Jasper Neill Anderson, Albermarle, N. C.; Maryland Medical College, Baltimore, 1895; member of the Medical Society of the State of North Carolina; aged 52; died, February 16, at Long's Sanitarium, Statesville.

Ralph Browning ✠ Myersville, Md.; Baltimore Medical College, 1897; formerly member of the county board of education; aged 55; died, February 9, at the Frederick (Md.) City Hospital, of acute nephritis.

Cornelius Joseph McDermott, Sioux City, Iowa; Bennett Medical College, Chicago, 1914; on the staff of St. Vincent's Hospital; aged 42; died, February 8, at a local hospital, of heart disease.

John A. McCormick, Philadelphia; Jefferson Medical College of Philadelphia, 1897; member of the Medical Society of the State of Pennsylvania; aged 56; died, February 16, of pneumonia.

Chester Charles Curtis ✠ New York; University of Louisville School of Medicine, 1914; specialized in otology, laryngology and rhinology; aged 34; died, February 25, of septicemia.

Jonathan Zimmerman, Lynnville, Ind.; Barnes Medical College, St. Louis, 1899; member of the Indiana State Medical Association; aged 66; died, January 17, at San Antonio, Texas.

Thomas Dennis McDougal, Finley, Tenn.; Memphis Hospital Medical College, 1912; aged 38; died, February 7, of a self-inflicted bullet wound, while suffering from ill health.

Henry Marble, Gorham, N. H.; Medical School of Maine, Portland, 1870; member of the New Hampshire Medical Society; aged 76; died, Dec. 26, 1924, at Berlin, of pneumonia.

Isaac F. Tunison, Cincinnati; Cincinnati College of Medicine and Surgery, 1894; member of the Ohio State Medical Association; aged 66; died, January 31, of neuritis.

Charles Nelson Knapp ✠ Port Jervis, N. Y.; Bellevue Hospital Medical College, New York, 1894; formerly mayor of Port Jervis; aged 56; died, January 29.

William A. Cox, Pascagoula, Miss. (licensed, Mississippi, 1882); member of the Mississippi State Medical Society; aged 70; died suddenly, February 17.

Harry Alexander Minsky, North Adams, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1921; aged 27; died, February 21, of pneumonia.

Richard Joseph Piper, Chicago; University of Michigan Medical School, Ann Arbor, 1875; formerly city physician; aged 75; died, March 6, of uremia.

Hiram M. Phillips, Terrell, Texas; Dallas Medical College, 1903; member of the State Medical Association of Texas; aged 54; died, Dec. 23, 1924.

Carl Bernhardi, Sr. ✠ Chicago; University of Berlin, Germany, 1867; aged 81; died, March 3, at the North Chicago Hospital, of pneumonia.

Virgil M. Taylor, Sapulpa, Okla.; Hospital College of Medicine, Louisville, Ky., 1882; aged 81; died, January 24, following a long illness.

William A. Bates, Purdon, Texas (licensed, Texas, under the act of 1907); aged 72; died, February 6, at Waco, following a long illness.

Clarence Ferdinand Ruloff ✠ Philadelphia; Temple University Department of Medicine, Philadelphia, 1919; aged 39; died, February 2.

James Edwin McDonald ✠ Logan, W. Va.; University of Louisville (Ky.) School of Medicine, 1902; aged 53; died, Dec. 4, 1924.

Harry L. Kinnaman, Tiffin, Ohio; Columbus Medical College, 1883; aged 64; died suddenly, Dec. 16, 1924, of heart disease.

Daniel R. Grover, Chicago; Dunham Medical College, Chicago, 1899; aged 71; died, March 7, of cerebral hemorrhage.

Harrison T. Lee ✠ Athens, Ohio; Medical College of Ohio, Cincinnati, 1881; aged 69; died, January 14, of heart disease.

Thomas Charlton Louks, Terre Haute, Ind.; Indiana Medical College, Indianapolis, 1907; aged 53; died, February 22.

Silas W. Morgan, Shawneetown, Mo.; Barnes Medical College, St. Louis, 1893; aged 55; died, February 5, of pneumonia.

Nathan B. Bordensky ✠ Baltimore; College of Physicians and Surgeons, Baltimore, 1907; aged 39; died in January.

Cornelius O'Brien, St. Louis; Rush Medical College, Chicago, 1863; aged 92; died, March 1.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

LOESER'S INTRAVENOUS SOLUTION OF CALCIUM CHLORID NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. Puckner, Secretary.

The Council, in a report (The Journal, April 16, 1921) declaring certain of "Loeser's Intravenous Solutions" inadmissible to New and Nonofficial Remedies, stated its attitude toward solutions marketed for intravenous therapy, thus:

> "The Council continues to hold that intravenous medication, generally, is not as safe as oral medication even with relatively harmless substances (a fact again illustrated by the results of Hanzlik and Karsner, 1920, *Journal Pharamcology and Experimental Therapeutics* **14,** 379), and that it does not give 'improved clinical results' except under rather narrowly confined circumstances—namely, if the drug undergoes decomposition in the alimentary tract, if it is not absorbed, if it causes serious direct local reaction or if time is an urgent element. Each intravenous preparation for which advantage over oral administration is claimed, directly or by implication, must be examined from these points of view."

In the advertising of the New York Intravenous Laboratory, Loeser's Intravenous Solution of Calcium Chlorid is proposed for use especially in intestinal tuberculosis and tetany. In neither condition are the indications so urgent that the intravenous method will be the only or the best channel of introducing calcium if that element is desired.

In view of the reactions that calcium may produce, the oral method of administration should generally be preferred. But the manufacturers in another pamphlet make the astounding statement: "Neither calcium nor guaiacol is adapted to oral administration."

The advertising for Loeser's Intravenous Solution of Calcium Chlorid tends to create the impression that superior scientific care in the preparation of the firm's solution is taken by making a toxicity test on rats. To estimate the purity of calcium chlorid by determining its toxicity on rats is somewhat analogous to determining the alcohol percentage in whisky by a similar life test.

Loeser's Intravenous Solution of Calcium Chlorid is inadmissible to New and Nonofficial Remedies because the advertising implies that the intravenous method is generally the method of choice for the administration of calcium and that calcium is not adapted to oral administration; these claims are misleading and, therefore, unwarranted.

SAGROTAN OMITTED FROM, AND MITYSOL NOT ACCEPTED FOR, N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. Puckner, Secretary.

Under the proprietary, nondescriptive name "Sagrotan" the Council recognized a mixture containing chlorcresol and chlorxylenol in a soap solution marketed by Lehn and Fink, Inc. (The Journal, April 12, 1924, p. 1199). This action was taken because the rules of the Council provide that a proprietary name may be recognized for a product when such a name is applied to it by the discoverer and because Lehn and Fink, Inc., claimed that they had secured the trademark rights to the name from Schuelke and Mayr of Hamburg, Germany, the introducers of the preparation. Subsequently, Lehn and Fink, Inc., wrote the Council that the word Sagrotan "had fallen into the hands of the alien property custodian" and that for this reason the product was to be marketed under the name "Mitysol."

The trademark on Sagrotan is one of the trademarks held by aliens which the United States government seized as a result of the World War and assigned to the Chemical Foundation, Inc. The foundation will issue nonexclusive licenses for the use of its trademarks to American citizens or firms, and in so doing stipulates that the products marketed under such a license must be of a quality equal to that of the original product.

Since Lehn and Fink, Inc., has not obtained a license for the use of the name Sagrotan from the Chemical Foundation and no longer markets "Sagrotan," the Council rescinded its acceptance of this preparation.

Lehn and Fink, Inc., is not the originator of the product that is now marketed as Mitysol and, therefore, the Council refused recognition to the preparation "Mitysol" on the ground that the application of different names to identical substances causes confusion and is not conducive to the intelligent use of drugs.

Correspondence

PRIORITY IN THE "INVENTION" AND EMPLOYMENT OF THE STOMACH TUBE

To the Editor:—In The Journal, February 21, p. 606, it appears that our German confrères are exercised over who first suggested and used the stomach tube and when a celebration in honor of the man and the event should be staged.

As so frequently happens in Europe, particularly in Germany, important contributions to scientific and clinical medicine pass unrecognized, should such occur *extra muros.* To the average German physician, credit for the stomach tube and its employment goes to Kussmaul. Since a celebration in honor of that distinguished scientist and his tube is impending, it would seem proper that the facts relative to the introduction of tubes into the stomach be reviewed.

To Dr. Julius Friedenwald of Baltimore we are indebted for a history of this gastro-enterologic milestone (*Proc. Am. Gastro-Enterol. A.,* 1917; Introduction, Tice's "Practice of Medicine," **7,** Sect. X, p. 15). Friedenwald called attention to an article by Philip S. Physick, M.D., professor of surgery in the University of Pennsylvania, appearing in the *Eclectic Repository* of October, 1812, under the title, "Account of a New Mode of Extracting Poisonous Substances from the Stomach." Using a large catheter for the purpose, Dr. Physick washed out the stomachs of three months' old twins who, accidentally, had been given an overdose of laudanum. One recovered; the other died. In his paper, the writer asserted that he had employed a tube for washing out the stomach during the preceding twelve years, and had for "many years" recommended its employment in his lectures. In 1809, according to Friedenwald, Dr. Physick's nephew, a Dr. Dorsey, placed on record a case similar to Dr. Physick's twins. In 1822, an English surgeon, Dr. Jukes, published an article in the London "Medical Repository" entitled "Description of an Apparatus for Removing Poison from the Stomach, Invented by Mr. Jukes, Surgeon," but presumably made no mention of the paper of ten years earlier written by Dr. Physick. Thus, the view was generally accepted that the stomach tube was of English origin. It was not until 1867 that Kussmaul employed gastric lavage on the now famous (in Europe) "Marie Wiener," who was affected with enormous dilatation of the stomach consequent on pyloric stenosis due to the cicatrix of a large peptic ulcer. Kussmaul's paper, "Ueber die Behandlung der Magen-

erweitering durch eine neue Methode mittelest die Magenpumpe," did not appear until years later (1869, *Deutsch. Arch. f. klin. Med.*).

Kussmaul, seemingly, gave no credit in his writings or his lectures to Drs. Dorsey, Physick or Jukes. Apparently, too, he had little conception of the diagnostic possibilities of employing the stomach tube in securing gastric contents for analysis: he seemed content to emphasize tube lavage only as a therapeutic agent. Further, it remained for Jurgensen (1870) to point out that the "pump" of Kussmaul was objectionable from the standpoints of cleanliness and practicability. Jurgensen employed the soft rubber tube and introduced the principle of siphonage in securing specimens for observation and as a means of lavage. Leube (1871) suggested the test meal; Ewald (1875) drew attention to the fact that any rubber tube, fairly stiff, could be passed to the stomach without guiding stylet; Uffelmann (1880) contributed his test for lactic acid; Riegel (1881) demonstrated that, despite food stimulation, gastric contents in malignancy contained no hydrochloric acid; Van den Velden (1879), following the earlier suggestions of Witz, first used anilin dyes (tropeolin, acid rosanilin, methylanilin violet) as "indicators" for hydrochloric acid in gastric extracts; Ewald and Boas (1885) made the first contribution on the physiology and pathology of digestion, from information derived from test meals removed by the stomach tube; Guenzburg (1887) published his procedure for estimating free hydrochloric acid from the total acidity values.

From the foregoing it appears that a "Kussmaul" celebration, if its main purpose is to commemorate the "discovery" of the stomach "pump" or tube, has scant basis of fact. Furthermore, eminent though Kussmaul may have been as a clinician, apparently he made little scientific capital of his experiences with "Marie Wiener" and others of similar type. The investigations that followed Jurgensen's method of siphonage were many and valuable, and, however potent Kussmaul might have been in inspiring research, little material of outstanding value came from his clinic.

FRANK SMITHIES, M.D., Chicago.

INSTRUMENTS FOR BLOOD TRANSFUSION

To the Editor:—The recent appearance in THE JOURNAL of articles and advertisements illustrating instruments for direct blood transfusion which include the use of ball valves seems to deserve comment and discussion for the safety of the donor, if not for the patient. It seems to me that any apparatus that does not positively insure the donor against receiving any blood from the patient should not be used in transfusion work, except possibly in selected cases. At least, all patients with active syphilis, septicemia or infectious disease, and accident cases in which the condition of the patient's blood is unknown should be excepted in doing direct transfusion with such an apparatus. In the use of pumps, which incorporate either the ball valve or conical valve principle in the production of suction and pressure with my indirect apparatus (described in THE JOURNAL, Nov. 16, 1918), I have yet to find one that is 100 per cent. positive. In fact, it is my belief that the area of contact between the valve and seat is so limited in this type of pump that it can never be depended on to be leak-proof. This leakage, I believe, will even be greater when blood is passing through these valves and fibrin is deposited on both the valve and the seat. The use of such valves in the direct method of transfusion would not protect the operator against liability in case the donor should develop syphilis, septicemia or infectious disease such as that from which the corresponding patient suffered.

Methods of direct transfusion, as the syringe cannula and the Unger apparatus, using the leak-proof stopcock valve, are not objectionable in this regard. I do not wish in any way to depreciate the value or make more difficult the application of direct transfusion; but the interests of healthy persons used as transfusion donors must be kept in mind, and the profession should not lay itself liable by using this questionable method of direct transfusion.

F. W. HARTMAN, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ABSORPTION OF ULTRAVIOLET RAYS

To the Editor:—It is stated that window glass filters out the ultraviolet rays of sunlight, and that fused quartz allows them to pass. Will thin sheets of celluloid or any other substance allow the ultraviolet rays to pass through?

J. H. MURPHY, M.D., Geneseo, Ill.

ANSWER.—That portion of the sunlight which is potent in the cure and prevention of rickets lies in the ultraviolet or invisible part of the spectrum. These rays are not transmitted by ordinary window glass. Pacini (*M. Herald & Electro-Therapist,* October, 1922) and Hess and Weinstock investigated the potency in prevention of rickets, of light from a mercury vapor quartz lamp after it had passed through various kinds of glass filters. Rats on a rachitic diet when exposed daily to such light, unfiltered, for two minutes at a distance of 3 feet, do not develop any symptoms of the disease. For the most part, light that had passed through the filters was inactive even with daily exposures of one hour at a distance of 9 inches. Thin Pyrex glass permitted the passage of a small percentage of active rays, since exposures of fifteen minutes at a distance of 18 inches prevented the occurrence of rickets. Thin sheets of "celluloid" and of photographic film are transparent to the near ultraviolet but are fairly opaque beyond 300 mm.; they would therefore not be of practical value.

To meet the demand for an "ultraviolet" window, one firm is manufacturing fused quartz paning. Such glass can be obtained in panes 8 inches by 5 inches by ⅛ inch at a price of $35 per pane. Obviously, from twenty-five to forty of these panes will be necessary to make a window sufficiently large to be efficient. Such windows are being installed in hospitals, but the cost makes it impracticable for most homes.

It should be borne in mind also that during the winter months, when exposure to sunlight outdoors would not be generally possible, the intensity of ultraviolet light in the solar spectrum is at a minimum. Experiments have shown that it is not efficient for the prevention of rickets in rats. At this season an "ultraviolet" window would have little value. Probably a better solution of the problem is to find a filter that selects in the light from a mercury quartz lamp only those rays in the near ultraviolet such as are found in sunlight. Such lamps could be installed in nurseries or sun parlors, and light baths could be taken at will.

Investigation of this phase of the problem is under way in several laboratories, and undoubtedly information will soon be available.

An interesting table of the comparative transparence of glasses to ultraviolet rays, as well as an excellent discussion of the physics of ultraviolet radiation, may be found in "Ultraviolet Radiation: Its Properties, Production, Measurement and Application," by M. Luckiesh (D. Van Nostrand Company, 1922).

ULTRAVIOLET RAY THERAPY

To the Editor:—Please inform me as to the history of the quartz light, or what is known as the ultraviolet lamp. Who first made it and who first made use of the light to treat disease?

EDWIN D. WATKINS, M.D., Memphis, Tenn.

ANSWER.—Dr. E. L. Oliver (THE JOURNAL, Aug. 19, 1922, p. 626) states that in 1892, Arons discovered that an electric current passed through a vacuum tube containing a small amount of metallic mercury produced a peculiar bluish light

containing no red or orange rays. Not long after, Cooper Hewitt, an American engineer, patented a lamp based on Arons' discovery, and the Cooper Hewitt lamp has become a commercial success on account of the small amount of current it consumes. Although the ordinary Cooper Hewitt lamp is very rich in ultraviolet light, the glass of the vacuum tube filters out the ultraviolet light, so that it has no effect on the skin, however valuable it may be for illumination. The next step toward a mercury lamp of therapeutic value was the successful fusing of quartz crystals by Heraeus, and the manufacture of vacuum tubes of this material. From this time improvements followed that eventually gave us the simple, efficient quartz lamp of today. Finsen, in 1895, treated lupus vulgaris with the employment of the chemical rays (blue, violet and ultraviolet) of light.

USE OF MILK IN NEPHRITIS—ANTITYPHOID VACCINATION

To the Editor:—1. In nephritis, why is the protein in milk not regarded as harmful, as other forms of protein? 2. What is the justification of giving milk, an unlimited quantity, as is often done, when other liquids are restricted? 3. How soon after typhoid vaccination, consisting of three injections at five or seven day intervals, does immunity to infection begin? In other words, can a patient who has been exposed or infected with typhoid be prevented from developing the disease by ordinary typhoid immunization? If published, please omit my name.

———, M.D., Illinois.

ANSWER.—1. The protein content of milk supplies what is known to dietitians as a complete protein. It is also free from the extractives that are found in meat. In nephritis, milk has other functions: (*a*) the salt content is low; (*b*) the *total* components are known; and (*c*) milk itself has diuretic properties.

2. Giving milk in unlimited quantities when other liquids are restricted seems to be a mistake, since the water of milk is no different from water given in any other form. A fluid restriction should include milk restriction also.

3. Typhoid vaccine, now in general use, is usually made from a type of *B. typhosus* of low virulence, properly sterilized by heat and containing preservatives, and administered in standardized doses of three injections, seven days apart. The organisms *B. paratyphosus* A and *B. paratyphosus* B are frequently added. Immunity apparently appears about the end of the first week after the first or second injection. The blood serum of the vaccinated person has then acquired immunizing properties. These properties increase, and may reach their maximum shortly after the third injection. It seems to be agreed that this immunity, once acquired, may last for several years; but there is no absolute certainty that persons immunized may not be subsequently infected within this period and typhoid fever produced; yet such so-called failures of typhoid vaccination are comparatively few in number—that is, the dose of infection may be of such quantity and virulence that immunization may fail to protect. Therefore, in the immunization of actual contacts to a typhoid fever case, though advocated by many health departments as a preventive measure, it is most important for the contacts not to neglect any of the ordinary or regular sanitary precautions, accordingly.

INTERFERENCE WITH PREGNANCY

To the Editor:—Recently a young married woman asked a question that I would like to have you answer, viz.: What effect, if any, can follow the use of dilators, such as sticks or pieces of wood in the cervix, used in an effort to bring on menstruation—with reference to the embryo? The patient at first wished to dispose of a two weeks' product of conception and, failing, changed her mind so that now she is desirous of having a child, but is afraid of having "marked it" or disturbed the embryonal cells. The effort was followed by a slight discharge of clear fluid, which is gradually clearing up; but no hemorrhage has ever been present, nor did she at any time suffer any ill effects from her act. Please omit my name.

———, M.D., Ohio.

ANSWER.—Granted that later developments proved that the woman was two weeks' pregnant when she attempted interruption by means of some mechanical device, as sticks of wood or tents, it is hardly conceivable that the embryo could have been injured by such attempts when the pregnancy continued. So long as the separation of the chorionic villi was not material, it is readily possible for the pregnancy to continue uneventfully, and without harm to the child.

In some cases women have even had curettage of the uterus and yet the pregnancies continued without harm. Such instances show to what degree a pregnant woman may tolerate drastic instrumentation within the uterus—and the immunity to harm that the embryo possesses.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 7-8. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

COLORADO: Denver, April 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, April 14. Sec., Dr. Edgar P. Copeland, 104 Stoneleigh Court, Washington.

HAWAII: Honolulu, April 13. Sec., Dr. Guy C. Milnor, 401 Beretania St., Honolulu.

IDAHO: Boise, April 7. Dir., Mr. Charles Laurenson, Boise.

ILLINOIS: Chicago, April 14-16. Supt. of Regis., Mr. V. C. Michels, Springfield.

MINNESOTA: Minneapolis, April 7. Sec., Dr. Thomas McDavitt, 734 Lowry Bldg., St. Paul.

MONTANA: Helena, April 7. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW MEXICO: Santa Fe, April 13-14. Sec., Dr. W. T. Joyner, Roswell.

OKLAHOMA: Oklahoma City, April 14-15. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 2-3. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 7. Dir., Mr. J. T. Hammond, State Capitol, Salt Lake City.

Pennsylvania January Examination

Mr. C. D. Koch, preliminary examiner, Pennsylvania Board of Medical Education and Licensure, reports the written and practical examination held at Philadelphia, Jan. 27-31, 1925. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the sixty-four candidates examined, 56 passed and 8 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Number Licensed
Howard University	(1923, 2)	2
University of Georgia	(1917)	1
Rush Medical College	(1922)	1
Johns Hopkins University	(1922)	1
University of Maryland	(1916) (1923)	2
University of Michigan	(1923)	1
University of Minnesota	(1924)*	1
St. Louis University	(1924)	1
University of Nebraska	(1921, 2)	2
University of Buffalo	(1915)	1
Western Reserve University	(1892)	1
Jefferson Medical College	(1894), (1917), (1922), (1923,3)	6
University of Pennsylvania	(1922, 9) (1923, 7)	16
Woman's Medical College of Pennsylvania	(1923, 2)	2
Medical College of the State of South Carolina	(1903)	1
Memphis Hospital Medical College	(1906)	1
University of Tennessee	(1921)	1
University of St. Thomas, Manila	(1917)	1
Dalhousie University	(1922)	1
McGill University	(1904), (1922, 3)	4
University of Toronto	(1923)	1
University of Vienna, Austria	(1921, 2)†	2
University of Heidelberg, Germany	(1923)†	1
University of Leipzig, Germany	(1919)	1
University of Budapest, Hungary	(1920)†	1
University of Naples, Italy	(1915)†, (1923)†	2
American University Medical School, Syria	(1915)	1

FAILED		
College	Year Grad.	Number Failed
University of Maryland	(1923)	1
Leonard Medical School	(1902)	1
Temple University	(1923)	1
Meharry Medical College	(1897), (1912)	2
Comenian University, Czechoslovakia	(1919)†	1
University of Petrograd, Russia	(1921)†	1
University of St. Vladimira, Russia	(1916)†	1

* This candidate has completed his medical course and received an M.B. degree, and will receive his M.D. degree on completion of a year's internship in a hospital.

† Graduation not verified by the American Medical Association.

Hawaii January Examination

Dr. G. C. Milnor, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, Jan. 12-15, 1925. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the four candidates examined, 2 passed and 2 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Tulane University	(1916)	80.6
University of Pennsylvania	(1924)	85.1

FAILED		
College	Year Grad.	Per Cent.
Tokyo Imperial University, Japan	(1921)*	60.1
Tokyo Woman's Special Medical School, Japan	(1919)*	72.4

* Graduation not verified by the American Medical Association.

Book Notices

DIE RÖNTGENBEHANDLUNG DER GUTARTIGEN GENITALERKRANKUNGEN DER FRAU. Von Professor Dr. Wilhelm Lahm, Reg.-Medizinalrat Vorstand des Laboratoriums u. Leiter des Röntgen-Institutes der Staatlichen Frauenklinik Dresden. Band 2. "Radiologische Praktika." Cloth. Pp. 59, with 6 illustrations. Frankfurt Keim & Nemnich, 1924.

This treatise gives a concise survey of the roentgen-ray treatment of the nonmalignant disorders of the female generative organs. In the introductory chapter the essentials of the influence of roentgen rays in general on the female body are discussed. All items are considered, such as the age of the patients, the condition of their blood and the valuation of individual sensitiveness toward therapeutic roentgen rays. The possibilities of damage to the fertilized ovum or to an already developed embryo are also analyzed. As might be expected, the bulk of this book is devoted to the discussion of the pathology and therapy of uterine hemorrhages. While it is true that, as a rule, several causes will produce metrorrhagias, the author is convinced that in the majority of these cases the ovarian function plays a predominant part. Among gynecologic diseases amenable to roentgen-ray therapy are enumerated the metrorrhagias due to inflammatory diseases of the uterine appendages, infantilism and hypoplasia of the intrapelvic generative organs, amenorrhea, dysmenorrhea, tuberculosis of the generative organs, and the epidermoidal disorders of the vulva.

THE EFFECTS OF INANITION AND MALNUTRITION UPON GROWTH AND STRUCTURE. By C. M. Jackson, M.S., M.D., LL.D., Professor and Director of the Department of Anatomy, University of Minnesota. Cloth. Price, $8. Pp. 616, with 117 illustrations. Philadelphia: P. Blakiston's Son & Co., 1925.

This scholarly monograph is a distinct contribution to biology and medicine. It deals essentially with the growth and morphologic factors in various types of fasting, total or partial; the functional side is only incidentally touched on. In Part I there are chapters on inanition in plants, in protozoa and in the higher invertebrates. Part II, which is the major portion, contains two chapters on the effect of total and partial starvation on the body as a whole, and twenty-two chapters on detailed effects on separate organs. Part III contains a short chapter of general conclusions, with some statistical tables and a bibliography of 107 pages. The book contains many excellent photographs and diagrams and a useful index. Dr. Jackson has for many years been actively working in the field of structural changes in the body and body organs as a result of faulty nutrition. In this work he has summarized the researches of his own laboratory, with a critical review of the entire literature, and has thus performed a valuable service to biology and medicine in this country.

TECHNIQUE CLINIQUE D'EXAMEN COMPLET DU SYSTÈME NERVEUX. Par G. H. Monrad-Krohn, Professeur de médecine à l'Université royale de Christiania. Préface du Docteur Souques, Membre de l'Académie de médecine de Paris. First French edition from second English edition. Translated by le Docteur R. Mourgue, Médecin des asiles. Paper. Price, 12 francs. Pp. 209, with illustrations. Paris: E. Le François, 1925.

The appearance of a French edition of this unique book affords a welcome opportunity to call attention to the fact that it was originally written in English, but not by an Englishman or an American. The author is a Norwegian, and professor of neurology in the University of Norway. A second English edition appeared over a year ago, and the book has had great success on both sides of the Atlantic. It has been used by students and hospital interns ever since the appearance of the first edition, and can be recommended as a practical and reliable guide for those wishing to make intelligent examinations of patients suspected of having nervous disorders.

IMPRESSIONS OF GREAT NATURALISTS. Reminiscences of Darwin, Huxley, Balfour, Cope and others. By Henry Fairfield Osborn, Research Professor of Zoology in Columbia University. Cloth. Price, $2.50. Pp. 216, with illustrations. New York: Charles Scribner's Sons, 1924.

The author presents the lives of twelve naturalists chosen from fifty-seven biographic sketches that he has published in various periodicals. He begins with a most interesting autobiographic foreword in which he describes how he came under the influence of many of the great men who pass through his pages. He tells us that the naturalist is animated by the joy of observation without initial hope or thought of discovery, but surely in the end leading to discovery. The book is lightened with numerous anecdotes, and contains also excellent and unusual portraits of those whom it considers. Of particular interest to the physician will be the sketches of Louis Pasteur and Joseph Leidy.

FUNKTIONSPRÜFUNG INNERER ORGANE. Von K. Glässner, L. R. Grote, G. Lepehne, E. Magnus-Alsleben, O. Platz, van der Reis, M. Rosenberg, und A. Weber. Paper. Price, 2,40 goldmarks. Pp. 128, with illustrations. Berlin: Julius Springer, 1924.

This is a collection of articles that have been appearing in the *Klinische Wochenschrift* during the last two years. Functional tests are fast becoming of importance to the clinician, so that the appearance of such a work is timely. The field covered in the various discussions includes functional tests of the activity of the heart, stomach, intestines, liver, kidney and pancreas, while a chapter is inserted on pharmacologic tests of the activity of the nervous system. While it is not contended that such tests will invariably prove of absolute diagnostic value, it is certainly true that the application of many of these functional procedures will often clear up many factors that have been previously obscure. The writers of the various sections are men who have worked with these methods and can speak authoritatively regarding them, although it is unfortunate that little or no attention is paid to some of the tests originated by our American colleagues. The brochure is written in a clear and concise manner, and may be recommended to all clinicians who may wish a brief discussion of this important field.

NEUE THERAPEUTISCHE WEGE. Osmotherapie-Proteinkörpertherapie Kolloidtherapie. Von Prof. Dr. Karl Stejskal. Boards. Pp. 398. Vienna: Julius Springer, 1924.

In this collection of lectures on newer therapeutic ways, Stejskal discusses osmotherapy and proteotherapy, the common characteristic of which is the new and unusual way of administration for therapeutic purposes of old and ordinary substances. In view of the fact that after injection of hypertonic solutions there occurs an escape of serum protein into the tissue spaces, the author conceives that osmotherapy, in addition to its own special action, has some of the effects of proteotherapy, though proteotherapy has a much feebler resorptive action than osmotherapy. In both forms of therapy, nonspecific stimulation is the chief agent, and not the name nor the dose of the substance, but the reactivity of the patient's tissues is the determining factor for success. Thus a characteristic feature of proteotherapy is the entirely different reaction of the pathologic subject as compared with the normal.

PHYSIO-THERAPY IN GENERAL PRACTICE AND FOR THE USE OF MASSEUSES. By E. Bellis Clayton, M.B., B.Ch., Director of the Physio-Therapeutic Department, King's College Hospital, London. Cloth. Price, $3.50. Pp. 174, with 26 illustrations. New York: William Wood and Company, 1924.

This volume contains a brief description of treatments with massage, exercise, radiant heat, and the faradic and galvanic currents, but no mention is made of diathermy, heliotherapy or phototherapy and almost nothing is said of hydrotherapy. In order to help the medical practitioner unacquainted with massage and medical exercises, a brief introductory chapter describing these forms of treatment is included. Chapters are included giving specific directions for treating particular fractures, dislocations and other injuries; also some medical conditions, such as heart diseases, pleurisy and empyema. Crawling exercises, introduced by Klapp for the treatment of scoliosis, are described rather fully by the author, who finds them valuable for improving the mobility of the spine and strengthening the chest muscles. The book is too brief to admit enough detail to render it of much use except as a primer in instructing assistants in some of the fundamentals in physical treatment.

Medicolegal

Definitions of "Wound," "Maim," "Mayhem"

(State v. Foster et al. (La.), 101 So. R. 255)

The Supreme Court of Louisana holds in this case, in which Foster had been convicted of an assault in which he did "wound short of maiming," that a "wound" is a breach of the skin, or of the skin and flesh, and there need be no effusion of blood. The word "maim" implies a permanent injury or crippling, and according to the better use is not a synonym for mayhem, which is a particular, aggravated sort of maim. A mere breach of the skin or of the skin and the flesh may be produced with a stick, and such injury would clearly constitute a wound less than maiming; i. e., less than a permanent injury or crippling. "Mayhem" implies a permanent injury or crippling, and at common law consists of bodily harm to another, such as to render him less able to defend himself or less able to annoy his adversary, as distinguished from one which merely disfigures or does not disable.

Federal Versus State Narcotic Laws—Unlawful Prescribing

(Simmons v. United States (U. S.), 300 Fed. R. 321)

The United States Circuit Court of Appeals, Sixth Circuit, in affirming a judgment of conviction of defendant Simmons of furnishing morphin in violation of the Harrison Narcotic Law, says that he was a practicing physician in Tennessee. During the period of nine months he had given to 108 morphin addicts a total of 4,095 prescriptions, calling for 79,592 grains of morphin. It was his custom to recognize 8 grains daily as a maximum, and to give prescriptions intended to cover this supply for a period of six days. Under the theory established by *U. S.* v. *Behrman,* 258 U. S. 280, 42 Sup. Ct. 303, and on the undisputed facts, as stated by the defendant as a witness in his own behalf, he was plainly guilty. A conviction in such a case will not be set aside, even if there were errors which would require reversal in a doubtful case.

Complaint was made that the case was one of entrapment. The prescriptions were given to an addict in the pay of the government, acting as a detective. But the record did not show any forbidden entrapment, as recently defined by this court. The conceded volume of the defendant's business of this type was so conclusive of his intent that the entrapment defense did not call for serious consideration.

After the passage of the Harrison Narcotic Law, it was believed by some that a physician continued to be at liberty to prescribe for morphin addicts sufficient quantities to keep them comfortable, and to make each prescription cover a substantial time, during which the morphin might be self-administered by patients who were not under restraint. Apparently with this view of the law, the Tennessee legislature passed Chapter 105 of the Acts of 1919, which expressly provided, among other things, that, to a patient incurably addicted to morphin, a physician might prescribe a thirty-day supply not exceeding 8 grains daily. He might do so if the patient presented a health officer's certificate that the patient was thus incurably addicted. Under this statute the state board of health adopted rules and regulations, providing that a local health officer, or a delegated physician, might make these certificates of incurability. Although the state statute and these regulations plainly provided that it was the person incurably addicted to the use of the drug who might obtain this thirty-day supply, yet, in the hopeless endeavor to avoid conflict with the federal law, regulation No. 7 was made to provide, "in line with the construction put on the Harrison Narcotic Law by federal authorities, the words 'incurably addicted,' as used in Section 1 of the state law, are hereby construed to mean and apply only to narcotic addicts affected with incurable diseases or infirmity of age." In pursuance of this statute and rule the defendant made it his practice, though not an invariable one, to require his patients to bring from a health officer or some physician a certificate that they were afflicted with "incurable diseases," such as asthma, rheumatism, tuberculosis, gastritis, Bright's disease or cancer. The trial was largely devoted to the question of good faith under these certificates and under this state law. There was nothing of substance to this defense. This provision of the state law was manifestly in conflict with the Harrison Narcotic Law as interpreted in the Behrman case, and no amount of compliance with the state law and regulations could be of any avail in such a prosecution as this.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 21-24. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Acting Secretary.

American Association of Anatomists, Cleveland, April 9-11. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American Association of Genito-Urinary Surgeons, Washington, D. C., May 4-6. Dr. Henry G. Bugbee, 40 East 41st St., New York, Sec'y.

American Climatological and Clinical Association, Washington, D. C., May 4-5. Dr. Arthur K. Stone, Framingham Center, Mass., Secretary.

American Dermatological Association, Washington, D. C., May 4-6. Dr. Udo J. Wile, 9 Geddes Heights, Ann Arbor, Mich., Secretary.

American Gynecological Society, Washington, D. C., May 4-6. Dr. Arthur H. Curtis, 104 South Michigan Avenue, Chicago, Secretary.

American Laryngological Association, Washington, D. C., May 4-6. Dr. George M. Coates, 1811 Spruce Street, Philadelphia, Secretary.

American Neurological Association, Washington, D. C., May 5-6. Dr. Frederick Tilney, 870 Madison Avenue, New York, Secretary.

American Ophthalmological Society, Washington, D. C., May 5-6. Dr. T. B. Holloway, 1819 Chestnut Street, Philadelphia, Secretary.

American Orthopedic Association, Washington, D. C., May 5-6. Dr. DeForest P. Willard, 1630 Spruce Street, Philadelphia, Secretary.

American Otological Society, Washington, D. C., May 4-5. Dr. T. J. Harris, 104 East 40th Street, New York, Secretary.

American Pediatric Society, Washington, D. C., May 4-6. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.

American Psychiatric Association, Richmond, Va., May 12-15. Dr. E. D. Bond, 4401 Market Street, Philadelphia, Secretary.

American Society of Clinical Investigation, Washington, D. C., May 4. Dr. J. H. Austin, University of Pennsylvania, Philadelphia, Secretary.

American Society of Tropical Medicine, Washington, D. C., May 5-6. Dr. B. H. Ransom, P. O. Box 131, Pennsylvania Avenue Station, Washington, D. C., Secretary.

American Surgical Association, Washington, D. C., May 4-6. Dr. Robert B. Greenough, 8 Marlborough Street, Boston, Secretary.

Arizona Medical Association, Bisbee, April 16-18. Dr. D. F. Harbridge, Goodrich Building, Phoenix, Secretary.

Arkansas Medical Society, Little Rock, May 13-15. Dr. William R. Barthurst, 810 Boyle Building, Little Rock, Secretary.

Association of American Physicians, Washington, D. C., May 5-7. Dr. Thomas McCrae, 1929 Spruce Street, Philadelphia, Secretary.

Congress of Physicians and Surgeons of North America, Washington, D. C., May 5-6. Dr. W. R. Steiner, 646 Asylum Avenue, Hartford, Conn., Secretary.

Georgia, Medical Association of, Atlanta, May 13-15. Dr. A. H. Bunce, 65 Forrest Avenue, Atlanta, Secretary.

Hawaii, Medical Society of, Honolulu, April 24-27. Dr. Forest J. Pinkerton, 43-46 Young Building, Honolulu, Secretary.

Iowa State Medical Society, Des Moines, May 13-15. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.

Kansas Medical Society, Topeka, May 5-7. Dr. J. F. Hassig, 804 Elks Building, Kansas City, Secretary.

Louisiana State Medical Society, New Orleans, April 21-23. Dr. P. T. Talbot, 1551 Canal Street, New Orleans, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 28-30. Dr. J. A. Chatard, 1211 Cathedral Street, Baltimore, Secretary.

Minnesota State Medical Association, Minneapolis, April 27-29. Dr. E. A. Meyerding, 717 Commerce Building, St. Paul, Secretary.

Mississippi State Medical Association, Biloxi, May 12-14. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, May 5-7. Dr. E. J. Goodwin, 901 Missouri Theatre Building, St. Louis, Secretary.

National Association for the Study of Epilepsy, Richmond, Va., May 11-12. Dr. A. L. Shaw, 44 Church Street, Camden, N. Y., Secretary.

Nebraska State Medical Association, Lincoln, May 12-14. Dr. R. B. Adams, 1012 Terminal Building, Lincoln, Secretary.

New York, Medical Society of the State of, Syracuse, May 12-14. Dr. E. L. Hunt, 17 West 43d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, April 28-30. Dr. L. B. McBrayer, Southern Pines, Secretary.

Ohio State Medical Association, Columbus, May 5-7. Mr. Don K. Martin, 131 East State Street, Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 12-14. Dr. C. A. Thompson, 308 Barnes Building, Muskogee, Secretary.

South Carolina Medical Association, Spartanburg, April 21-23. Dr. E. A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Nashville, April 21-23. Dr. J. F. Gallagher, Jackson Building, Nashville, Secretary.

Texas, State Medical Association of, Austin, May 5-7. Dr. Holman Taylor, 207½ West 11th Street, Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).
Titles marked with an asterisk (*) are abstracted below.

American Journal of Pathology, Boston

1: 1-133 (Jan.) 1925

*Intranuclear Inclusions in Experimental Herpetic Lesions of Rabbits. E. W. Goodpasture, Pittsburgh.—p. 1.

Axis Cylinders of Peripheral Nerves as Portals of Entry to Central Nervous System for Virus of Herpes Simplex in Experimentally Infected Rabbits. E. W. Goodpasture, Pittsburgh.—p. 11.

*Pathways of Infection of Central Nervous System in Herpetic Encephalitis of Rabbits Contracted by Contact; Comparative Comment on Medullary Lesions in Case of Human Poliomyelitis. E. W. Goodpasture, Pittsburgh.—p. 29.

Certain Factors Determining Incidence and Severity of Herpetic Encephalitis in Rabbits. E. W. Goodpasture, Pittsburgh.—p. 47.

*Riedel's Struma Associated with Remnants of Postbranchial Body. L. H. Meeker, New York.—p. 57.

*Heterotopia of Bone Marrow Without Apparent Cause. E. R. Saleeby, Philadelphia.—p. 69.

Microglia and Process of Phagocytosis in Gliomas. W. Penfield, New York City.—p. 77.

Formation of Macrophages, Epithelioid Cells and Giant Cells from Leukocytes in Incubated Blood. M. R. Lewis, Baltimore.—p. 91.

*Studies on Blood Fibrin, Its Quantitative Determination; Normal Fibrin Values, and Factors Which Influence Quantity of Blood Fibrin. E. W. Schultz, J. K. Nicholas and J. H. Schaefer, Stanford University, California.—p. 101.

*Relation of Chronic Poisoning with Copper to Hemochromatosis. F. B. Mallory, Boston.—p. 117.

Intramuscular Inclusions.—Goodpasture is convinced that a better understanding of the so-called filtrable viruses will throw much light on the nature of the cellular inclusions which accompany the lesions of many acute infectious diseases.

Pathways of Infection of Herpes Virus.—Of ten experiments in which normal rabbits were placed in contact with rabbits infected in the eye with the virus of herpes simplex, seven contracted a herpetic encephalitis, and three of these died of the disease, four were killed a short time after the first appearance of symptoms. One rabbit which showed a slight elevation of temperature on the fourth day after exposure was killed two days later and the brain revealed no evidence of herpetic infection. Two rabbits after exposure for several days showed no symptoms of herpetic infection. Six weeks later one of these rabbits was inoculated on the eye with herpetic virus and died nine days later with herpetic encephalitis, thus showing no evidence of immunity to the virus. In the case of five rabbits whose pons and medulla were examined, it was clearly shown that the virus entered the brain twice through the sensory division of the fifth cranial nerves, once through the ninth cranial nerves, and twice through both these nerves. In two cases in addition to other lesions there was a herpetic inflammation involving the accessory motor nuclei at the lateral angles of the floor of the fourth ventricles. Virus apparently entered by way of the motor nerve through the fibers which have their origin in these nuclei. An opportunity was afforded to study histologically the brain of a sporadic case of poliencephalomyelitis in which lesions were present in the medulla that were strikingly analogous to those present in a similar situation in rabbits which have acquired herpetic encephalitis through an invasion of the brain by way of the glossopharyngeal nerve. Sufficient material was not obtained from this case to make a complete study of the central terminations of peripheral nerves. It is suggested that the virus of poliomyelitis in human infections may enter the brain through peripheral nerves.

Riedel's Struma.—Regenerative activity on the part of the parenchyma and persistent cell nests and accessory cysts representing the postbranchial body were observed by Meeker for the first time in a case reported. A man, aged 50, complained only of a swelling in the neck, failing eyesight and hoarseness. Family history and earlier personal history were unimportant. The enlargement of the neck had been observed four or five months before and it had gradually increased, without pain. It obviously involved both lobes of the thyroid and it was extremely hard. The tonsils were enlarged and there was a severe inflammation of the pharynx and trachea. The preoperative diagnosis was carcinoma. The histologic structure in no way suggested carcinoma but rather was that of a chronic granuloma, a fairly late stage of Riedel's struma. Remnants of the postbranchial body were also found. From these findings it is assumed that a primary pharyngitis or tracheitis may extend by way of the postbranchial system into the thyroid. Since postbranchial remnants are found in human embryos, in athyreosis and in cretins and have not been found in normal adult thyroid glands, it is suggested that thyroids containing such rudiments may be of low vitality and quickly reach the stage of exhaustion and may, therefore, be peculiarly susceptible to the extreme form of atrophy and fibrous replacement seen in Riedel's struma.

Heterotopia of Bone Marrow.—A case, said to be the first of its kind noted, is reported by Saleeby in which two symmetrical masses of slightly hyperplastic bone marrow were found attached to the inner surface of the ribs in an old hemiplegic woman dying of terminal bronchopneumonia. This case apparently differs from any other reported in which bone marrow heterotopia has been found, both in the location and symmetrical arrangement of the masses, and in their separation from any of the organs of the body; also it differs from most cases in not having any apparent cause.

Studies on Blood Fibrin.—Normal fibrin values were obtained by Schultz, Nicholas and Schaefer on twenty-eight dogs. The average for animals on a diet of table scraps was 255 mg. per hundred cubic centimeters of blood, while the average for animals fed on dog biscuits was 308 mg. per hundred cubic centimeters of blood. Arterial blood yielded slightly higher fibrin values than venous blood. Liver necrosis produced a decrease in the fibrinogen. Chloroform injected into the portal system produced an immediate decline in the fibrinogen ranging from 30 to 90 per cent., depending on the amount injected and the length of time the animal lived. A similar decline followed prolonged chloroform anesthesia and carbon tetrachlorid poisoning. One of the animals poisoned with carbon tetrachlorid showed a complete disappearance of the fibrinogen. The liver of this animal had undergone almost complete necrosis. Mild liver injury produced an immediate rise in the fibrinogen, as in the case of tissue injury elsewhere. The fibrinogen also rose immediately following a clean laparotomy. Acute infections produced the highest elevations. Ether anesthesia produced no noticeable effect.

Chronic Copper Poisoning Causes Hemochromatosis.—Evidence is steadily accumulating to prove that chronic poisoning with copper is the cause of hemochromatosis. Mallory reports on ten cases that came to necropsy. While the fully developed disease is relatively rare, the early stages and the lighter forms are fairly common, but are necessarily unrecognized by the clinician and commonly overlooked by the pathologist. The sources of the poisoning are: (1) distilled liquors contaminated with copper dissolved from the copper worm of the condenser by the action of volatile organic acids (citric, acetic, etc.); (2) occupations involving exposure to copper dust (brass foundries, brass milling, planing and polishing, telephone line repairing) as the metal is readily dissolved in the juices of the body, however it may obtain entrance, and (3) probably also acid foods, jellies, candies, etc., contaminated by copper owing to having been cooked in copper vessels. Under this last heading must be included foods cooked and dried in copper kettles and pans, owing to the dissolving action of oleic, palmitic and stearic acids in lard and other fats on the metal. Experimental work with animals demonstrates that copper inhaled or ingested is dangerous to life, although its action as a chronic poison is exceedingly slow. This is the reason its deleterious effect has been so long overlooked. Studies of clinical cases show that ordinarily it takes from fifteen to twenty-five or more years to produce the symptom complex of the disease known as hemochromatosis. Mallory urges that steps should be

taken to prevent copper getting into liquors and foods and to protect workers in occupations involving copper from inhaling or ingesting copper dust. The reason that copper is generally found in minute quantities in human organs is not due to its being a normal constituent of the tissues but because man is constantly exposed to taking the metal into his system through foods and drinks contaminated with it. While small amounts cause no harm, because slowly eliminated, larger amounts absorbed during many years are exceedingly dangerous. Susceptibility to poisoning by copper probably plays a part as with lead and arsenic.

American Journal of Tropical Medicine, Baltimore

5: 1-91 (Jan.) 1925

Mosquito Control in Canal Zone; Especial Reference to Genus Anopheles. D. P. Curry, Balboa Heights, Canal Zone.—p. 1.
Tick Biting Experiments in Bovine and Cervine Piroplasmosis. H. C. Clark and J. Zetek, Ancon, C. Z.—p. 17.
Some Extrasyphilitic Therapeutics of Dioxydiamidoarsenobenzol and Its Modifications. O. T. Brosius, Barranquilla, Colombia.—p. 27.
Vesical Bilharziasis in Palestine. A. Felix, Jerusalem.—p. 41.
*Isolation and Maintenance of Leishmania on Medium Employed for Cultivation of Organisms of Leptospira Group of Spirochetes. H. Noguchi, N. Y., and A. Lindenberg, São Paulo, Brazil.—p. 63.
*Treatment of Hookworm Disease with Mixture of Carbon Tetrachlorid and Ascaridol. W. G. Smillie, N. Y., and S. B. Pessoa, São Paulo, Brazil.—p. 71.
*Hookworm Infection as Influenced by Wearing of Shoes. N. C. Davis, New York.—p. 81.

Cultivation of Leishmania.—Two strains of *Leishmania brasiliensis* have been isolated by Noguchi and Lindenberg from the lesions by means of the culture medium employed for the isolation and cultivation of organisms of the *Leptospira* group of spirochetes. It is suggested that this medium is highly advantageous for the isolation and maintenance of *Leishmania*, because of (1) the simplicity of preparation; (2) the stability at icebox temperatures; (3) the luxuriant growth obtained, and (4) the long period of life of the cultures without transfer. The leptospira medium has the advantage, therefore, of being applicable to the cultivation of three distinct groups of micro-organisms, two of the spirochetes (*Leptospira; Spironema*) and one protozoon (*Leishmania*).

Treatment of Hookworm Disease.—Smillie and Pessoa state that an anthelmintic approaching the ideal for field treatment of hookworm disease is obtained by administering 2 c.c. of a mixture containing 4 parts of carbon tetrachlorid and 1 part of ascaridol. The mixture is highly efficient, comparatively nontoxic, easy to administer and inexpensive.

Influence of Shoe-Wearing on Hookworm Infestation.—In an analysis of hookworm counts made by Davis, a rather definite correlation is found between the intensity of infestation and the amount of shoe-wearing among the different age groups of both sexes. It is indicated that infestation is contracted in the particular area studied, not so much by prolonged contact with the humid earth of the fields as by relatively shorter exposure to highly infested spots of pollution.

Journal of Clinical Investigation, Baltimore

1: 1-125 (Oct. 20) 1924

Purposes in Medical Research. A. E. Cohn, New York.—p. 1.
*Specific Gravity of Urine. O. H. P. Pepper, Philadelphia.—p. 13.
Relation Between Conductivity and Chlorids in Urine. H. C. Gram, Philadelphia.—p. 21.
*Blood Reaction and Blood Gases in Pneumonia. A. B. Hastings, J. M. Neill, H. J. Morgan and C. A. L. Binger, New York.—p. 25.
Method for Determination of Amount of Oxygen and Carbon Dioxid in Mixed Venous Blood of Man. C. S. Burwell, Baltimore, and G. C. Robinson, Nashville, Tenn.—p. 47.
Rate of Circulation of Blood in Normal Resting Individuals. H. Field, Jr., A. V. Bock, E. F. Gildea and F. L. Lathrop, Boston.—p. 65.
Gaseous Content of Blood and Output of Heart in Normal Resting Adults. C. S. Burwell, Baltimore, and G. C. Robinson, Nashville, Tenn.—p. 87.
*Evidence that Digitalis Influences Contraction of Heart in Man. A. E. Cohn and H. J. Stewart, New York.—p. 97.

Specific Gravity of Urine.—When the specific gravity of the urine is analyzed into a fraction due to urea plus chlorids and the residual fraction due to the other solids, exclusive of albumin, the following relations have been observed by Pepper: (*a*) A marked constancy of ratio between these fractions in any person, normal or nephritic, independent of diet. (*b*) In normals the residual fraction forms from 25 to 50 per cent. of the total. (*c*) In thirty-two observations on thirteen nephritics the residual fraction formed from 43 to 82 per cent. of the total. (*d*) The nephritic, independent of diet, excretes less "urea plus chlorids" in a urine of a given specific gravity than would a normal.

Blood Reaction and Gases in Pneumonia.—A study has been made by Hastings et al. of the p_H, carbon dioxid content, carbon dioxid tension, oxygen content and oxygen capacity of the arterial blood in pneumonia. The carbon dioxid tension was calculated from the p_H and carbon dioxid content of the blood. The other values were all determined directly. A comparison was made of colorimetric and electrometric p_H values with values calculated from the carbon dioxid absorption curves. A fair degree of consistency was obtained. A lower arterial carbon dioxid tension during the febrile period than after the return to normal temperature was noted in seven cases. Oxygen unsaturation and lowered carbon dioxid tension do not occur together with sufficient regularity to indicate a causal relationship. Such relationship between temperature and carbon dioxid tension seems more probable. No tendency toward an acidosis of either metabolic or respiratory origin was noted. The alkali reserve was within or near normal limits in every case. The p_H likewise was in each instance within normal limits, 7.30 to 7.50, with the greater number of observations in the more alkaline half of this range. These results contraindicated alkali therapy in all the pneumonia cases studied. In eight of the ten cases in which the arterial oxygen saturation was determined, an abnormally low saturation was observed at some stage of the disease. Taken with the nonoccurrence of carbon dioxid acidosis these results support the conclusion, made probable by known physiologic and physicochemical data, that when the mechanism for gas exchange in the lungs is affected, absorption of oxygen fails before elimination of carbon dioxid is significantly impaired.

Influence of Digitalis on Contraction.—The effect of digitalis in therapeutic doses was studied by Cohn and Stewart in four patients by means of the moving roentgen-ray film. Two of these exhibited a normal rhythm and the other two that of auricular fibrillation. In all cases a significant increase in the height of the left ventricular excursion was seen when the patients were under the influence of digitalis. As the effect of the drug wore off, the height of the excursion decreased. As a rule, no decrease in the size of the heart took place.

1: 127-215 (Dec. 20) 1924

*Experimental Studies on Rapid Breathing. I. Tachypnea, Independent of Anoxemia, Resulting from Multiple Emboli in Pulmonary Arterioles and Capillaries. C. A. L. Binger, G. R. Brow and A. Branch, New York.—p. 127.
*Id. II. Tachypnea, Dependent on Anoxemia, Resulting from Multiple Emboli in Larger Branches of Pulmonary Artery. C. A. L. Binger, G. R. Brow and A. Branch, New York.—p. 155.
*Transient Auricular Fibrillation Following Digitalis Therapy; Reaction to Atropin. W. H. Resnik, Baltimore.—p. 181.
*Leukocyte Curve as Index of Infection in Rheumatic Fever. H. F. Swift, C. P. Miller, Jr., and R. H. Boots, New York.—p. 197.

Tachypnea.—An analogy is suggested by Binger and his associates between the cause of tachypnea following multiple embolism of pulmonary arterioles and capillaries and the rapid breathing seen in such clinical conditions as acute and chronic congestion of the lungs, lobar pneumonia, miliary tuberculosis and pulmonary fibrosis.

Tachypnea Due to Obstruction.—Binger et al. state that tachypnea does result from obstruction to the larger branches of the pulmonary artery, but that it is different in character and origin from the tachypnea following obstruction to the pulmonary arterioles and capillaries. The tachypnea is due to the anoxemia and can be stopped or prevented by oxygen inhalation. The anoxemia has been attributed to a change in the quantitative relation of blood flow to the vascular diffusion area in the lungs. Changes of this sort occur in such clinical conditions as lobar pneumonia and pulmonary embolism in which cyanosis and rapid breathing are commonly encountered and where oxygen therapy is indicated.

Transient Auricular Fibrillation Following Administration of Digitalis.—Seven cases are reported by Resnik in which

the appearance of transient auricular fibrillation seems directly related to the administration of digitalis. The rhythm became normal a few days after the withdrawal of the drug. In five of the seven cases, the underlying etiologic factor in the disease of the heart was syphilis. In most of the patients the response to atropin was observed after the onset of fibrillation. It was concluded that auricular fibrillation following digitalis was due in some cases to strong stimulation of the vagus nerves, but that in most instances it was due to direct action on the heart muscle. In one patient there was a reversion to normal rhythm following the use of atropin.

Leukocyte Curve Index of Infection in Rheumatic Fever.—Swift, Miller and Boots found leukocytosis to be concomitant with the severity of rheumatic fever. In fact, from leukocyte counts made at frequent intervals and under constant conditions, curves can be constructed which give an approximate idea of the severity and duration of the infection. Patients in whom there are predominant exudative phenomena, such as polyarthritis, pleurisy or pericarditis, together with high fever, usually have more marked leukocytosis than those in whom the tissue reaction is chiefly proliferative, such as is seen in myocarditis, endocarditis, or subcutaneous nodules. A high leukocyte curve is often depressed when the patient is under the influence of antirheumatic drugs. Under such conditions, if the infection is mild and of short duration, the curve approximates the normal and remains there; if, on the other hand, the infection is persisting, the curve either remains constantly above normal, or tends to rise with the discontinuance of drug therapy. Relapses are usually heralded by a rise in the leukocyte curve.

Philippine Journal of Science, Manila

25: 661-774 (Dec.) 1924

*Complaints of Patients Under Antileprosy Treatment. H. W. Wade, C. B. Lara and C. Nicholas.—p. 661.
Lampyrids and Telephorids of Philippines. M. Pic.—p. 711.
Height, Weight and Chest Measurements of Mongolian Peoples, with Especial Reference to Southern Chinese. W. W. Cadbury, Canton, China.—p. 733.

Treatment of Leprosy.—It was noted by Wade et al. that the plain chaulmoogra ethyl esters are irritating, particularly to the tissues at the point of injection and to the respiratory tract, so much so as seriously to limit the intensiveness of treatment. Iodized preparations of the ethyl esters are much less irritating locally, which permit their more intensive use, and they also cause fewer complaints of general symptoms. The 2 per cent. iodized ethyl preparation, heretofore generally used, has, according to the data examined, certain minor but not insignificant disadvantages over the plain drug. The 0.5 per cent. iodized preparation is in several respects distinctly superior to the 2 per cent. and, unlike this, in no important way compares disadvantageously with the plain drug. It is, therefore, the best of the three for routine antileprosy treatment.

Porto Rico Medical Association Bulletin, San Juan

18: 3-36 (Dec.) 1924

*General Disturbances from Sinusitis. A. R. Laugier.—p. 5.
Plea for Compulsory Insurance Against Sickness in Porto Rico. A. Fernós Isern.—p. 9.
Influence of Climate, Improper Food and Tropical Diseases on the Character of the Inhabitants of Porto Rico. L. García de Quevedo.—p. 19.
Arguments in Favor of Life and Health Insurance for Physicians in Porto Rico. J. M. Santiago.—p. 31.

General Disturbances from Disease in Nasal Sinuses.—Laugier relates cases in which restoring conditions in the nose and accessory cavities to approximately normal was followed by the subsidence of various heart or kidney or other disturbances, asthma, headache or brain fag.

Surgery, Gynecology and Obstetrics, Chicago

60: 161-188 (Feb.) 1925

*Final Results in Radium Treatment of Carcinoma of Cervix Uteri at Radium Home, Stockholm, Sweden. J. Heyman, Stockholm, Sweden.—p. 161.
Surgical Restoration of Lining of Mouth. V. P. Blair, St. Louis.—p. 165.
*Treatment of Pelvic Suppuration. R. Worrall, Sydney, Australia.—p. 174.
*Treatment of Malignant Tumors of Pharynx and Nasopharynx. G. B. New, Rochester, Minn.—p. 177.
*Dermoid Cysts of Floor of Mouth. R. Colp, New York.—p. 183.
*Primary Endothelioma of Peritoneum. C. T. Crowdy, Montreal, Canada.—p. 196.
*Multiple Xanthoma of Tendons. J. E. McWhorter, and C. Weeks, New York.—p. 199.
Acute Dilatation of Stomach and Intestinal Tube; "Chronic Duodenal Ileus." G. Robertson, Dunfermline, Scotland.—p. 206.
Seminal Vesiculitis as Complication of Prostatism and Prostatectomy. N. P. Rathbun, New York.—p. 214.
Intravenous Injections (Eusol) in Septic Conditions. C. Robertson, Auckland, New Zealand.—p. 218.
*Cholecystectomy for Hyperacidity. G. de Takats, Budapest.—p. 221.
*Anemia of Puerperium: Eight Cases. C. T. Smith, Rocky Mount, N. C.—p. 223.
*Tuberculosis of Mammary Gland. J. A. Cahill, Jr., Washington, D. C.—p. 227.
Low or Cervical Cesarean Section (Laparotrachelotomy). J. B. DeLee, Chicago.—p. 230.
*Pelvic Varicocele. C. A. Castano, Buenos Aires, Argentina.—p. 237.
*Fibroid Tumors of Vulva. W. D. Fullerton, Cleveland.—p. 244.
*Acute Localized Infection of Kidney. A. E. Hertzler, Halstead, Kan.—p. 247.
Posterior Dislocation of Foot Without Fracture. H. E. Hullsiek, St. Paul—p. 256.
*Douglas Abscess Following Closed Treatment of Peritonitis. C. Nather and E. W. A. Ochsner, Chicago.—p. 258.
*Review of 500 Selected Laparotomies. R. M. Harbin, Rome, Ga.—p. 264.
Modern Theories of Electricity in Their Bearing on Roentgenology. G. Kolischer, Chicago.—p. 271.
*Vesicovaginal Fistula; Utilization of Thorough Dissection of Anterior Vaginal Wall for Closure. T. J. Watkins, Chicago.—p. 274.
*New Drain and Its Application to Pelvic Drainage. C. L. Larkin, Waterbury, Conn.—p. 278.
Apparatus for Reduction and Treatment of Fracture of Femur. J. Eaves and P. Campiche, San Francisco.—p. 279.
Iodin Preparation of Vulva for Delivery. R. S. Siddall, Detroit.—p. 281.

Radium Treatment of Carcinoma of Cervix.—In comparing the results of operable cases treated surgically with operable cases treated radiologically, Heyman points out that it must be borne in mind that the result with radium treatment is obtained at the expense of a very small primary mortality. In the Royal Caroline Institute they have lost through peritonitis or sepsis a total of six in 505 cases, that is 1.2 per cent. In a considerable number of inoperable cases (thirty cases out of 181, or 16.6 per cent.), clinical healing resulted and persisted for at least five years. Of the remaining inoperable cases, nearly 20 per cent., in some years more than 25 per cent., have still been symptom-free three years after the beginning of the treatment. In the majority of treated cases, even though a complete absence of symptoms has not been secured, a more or less lasting improvement has been obtained with a corresponding benefit to the patient. While the radiologic method of treatment probably has great possibilities of further development, Heyman emphasizes that good results with radium treatment, just as with surgical treatment, can be attained only by a study of the patient, a proper knowledge of the limitations of the form of treatment, a carefully planned technic and experience. In the hands of the inexperienced, the method involves great risks without any chances of results comparable to those secured with operation.

Treatment of Pelvic Infection.—Worrall maintains that the best treatment of pelvic infection and suppuration is immediate operation which can be carried out with a minimum of risk by means of a two-stage operation which is described.

Treatment of Malignant Tumors of Pharynx.—New's paper is based on twenty-one cases of epithelioma of the nasopharynx; twenty-three cases of lymphosarcoma of the nasopharynx; twenty-four cases of epithelioma of the pharynx and tonsil; twenty cases of lymphosarcoma of the pharynx and tonsil; fifteen cases of epithelioma of the tonsil; eight cases of lymphosarcoma of the tonsil; ten cases of operable mixed tumors of the pharynx; four cases of inoperable mixed tumors of the pharynx; nine cases of epithelioma of the hypopharynx; and two cases of lymphosarcoma of the hypopharynx. Of a total of 108 patients traced, forty-five are living, five of these ninety-one months after treatment, the others from twenty-nine to eighty-two months after treatment. Most of the patients treated received marked symptomatic relief; some had their lives prolonged for months or even years, while others are apparently cured.

Dermoid Cyst of Mouth.—Colp reports two cases of dermoid cyst of the floor of the mouth and one case of lingual cyst.

Primary Endothelioma of Peritoneum.—By virtue of entire absence of secondary, confusing degenerations (serous, mucoid, colloid) in Crowdy's case, the anatomic diagnosis of a primary endothelioma or mesothelioma of the peritoneum was most probable. The pathologic picture suggested the possibility of tuberculosis or carcinomatosis and further gross evidence of a primary focus was suspected. A very careful search for a primary growth was made. No tumor could be seen or palpated in the mammary glands or elsewhere in the exposed body. The abdominal viscera were grossly intact.

Multiple Xanthoma of Tendons.—The case reported by McWhorter and Weeks showed multiple lesions which were tuberose in character and, he feels, should be properly spoken of as xanthoma tuberosum multiplex. Because of the large size attained by the lesions in this form, it is the one seen by the surgeon and is usually incorrectly diagnosed as either fibroma, chondroma, or fibrosarcoma.

Cholecystectomy for Hyperacidity.—In two cases of "essential hyperacidity," when every other treatment had failed and subjective symptoms were prominent, de Takats performed cholecystectomy. As in both cases the gallbladder seemed to be of an atonic type with impaired mechanism, its removal could be decided on more easily. Relief followed in both cases, extending over a year.

Anemia of Puerperium.—Smith reports eight cases of so-called anemia of pregnancy. Only two showed pigmentation of the skin and this was not a lemon yellow tinge. Sore mouth and tingling in the extremities were found in three. The white cell count was below 6,000 in seven, and the same number had a color index of 0.8 and above. All eight patients had gastro-intestinal symptoms indicative of a low hydrochloric acid content, and the acid was given in all cases. Kidney disturbance might have been the etiologic factor in one case. The smears on five were noted to have achromia, anisocytosis and poikilocytosis. Only five patients were transfused, because donors could not be found for the other three. Of the two deaths, one patient had been transfused and the other had not; neither took the medicine prescribed. In all the cases fever appeared in the latter part of the illness varying from 1 to 5 F. The blood picture alone, the progressive anemia, low white cell count, and when noted, diminished number of platelets, would indicate a deficiency in the hematopoietic system.

Tuberculosis of Mammary Gland.—Cahill reports the case of a girl, aged 13, who apparently developed a tuberculosis of the breast subsequent to a trauma. In the absence of a positive family and personal history for tuberculosis, Cahill feels that the case may be considered as undoubtedly being one of primary tuberculosis of the breast.

Treatment of Pelvic Varicocele.—Castano exposes the ilio-ovarian ligaments, brings into view the varicosed utero-ovarian veins, ligates them above and below with catgut and divides each vein between the ligatures. The importance of recognizing pelvic varicocele as a clinical entity in gynecology is stressed because it presents the most subjective and the fewest objective symptoms. An early diagnosis is of great importance as surgical treatment of conservative nature should be initiated before uterine and ovarian lesions are produced. Castano terms his operation the "Argentine method."

Fibroid Tumor of Vulva.—Fullerton's case was a cellular fibroma of the vestibule. The tumor had been present four years. It was removed and has not recurred since the operation five years ago.

Acute Localized Infection of Kidney.—Hertzler classifies these cases into: (1) acute hematogenous infections; (2) pyelonephritis and (3) ascending infections. He concludes that the lesions in hematogenous infections of the kidney are, in most instances, not abscesses but infarcts, the bacteria in these cases being of too feeble virulence to cause abscesses. In such instances the constitutional reaction is due to protein poisoning and not to infection. Various types of pyelitis are secondary to kidney infections of hematogenous origin and the chief factor in their treatment is the eradication of the source of infection. Ascending infection of the kidney has not been proved. The location of the lesions indicates that bacteria in the urinary tract gain entrance to the blood stream and pass by this avenue to the kidney. The difference in character of the lesions is due to the difference in the offending organisms.

Douglas Abscess Following Peritonitis.—Among 700 cases of acute appendicitis treated in the Zurich surgical clinic there were thirty-nine cases (5.6 per cent.) of Douglas abscess which required drainage. These cases are analyzed by Nather and Ochsner. In addition to these cases there were observed twenty-three cases (3.3 per cent.) of Douglas infiltration which responded to conservative treatment. In at least 27 per cent. of all the cases the peritoneal exudate at the time of operation was found to be sterile. In at least 27 per cent. it was already infected, and in the remaining 46 per cent. there was either no bacteriologic examination or no exudate was present. Of the thirty-nine Douglas abscesses observed, twenty-five had been treated with primary complete closure of the peritoneal cavity without drainage. This reduces the percentage of Douglas abscesses following the closed method of treatment of acute appendicitis to 3.6 per cent. Of twenty-two cases in which the peritoneal cavity was primarily drained, a Douglas abscess resulted in four. In fourteen cases at the time of appendectomy, the culdesac was found to be filled with a large collection of pus and the culdesac was primarily drained. Twice this drainage was done through the vagina and once through the rectum. All three of these patients died shortly after the appendectomy. They were, however, very advanced cases. The remaining eleven cases were drained by means of a rubber tube and gauze extending from the culdesac out of the abdominal wound. In no less than three of these cases, in spite of the primary Douglas drainage, drainage through the rectum was later necessary on account of the formation of a secondary abscess in the culdesac. Thus the cases with primary drainage of the peritoneal cavity developed a Douglas abscess in 18.1 per cent. and those with primary Douglas drainage in 27.2 per cent. Mather and Ochsner believe that it is self-evident that the closed method of treatment of peritonitis following appendicitis is the method of choice. The average mortality in the cases treated by the closed method was 1.9 per cent. while that for all the 700 cases drained or not drained was 4 per cent.

Errors in Diagnosis in Abdominal Cases.—The average error in diagnosis among the 500 cases reviewed by Harbin was 3.4 per cent. and cases submitted to exploratory operation were 1.2 per cent. There were 191 elective operations (three deaths) and 309 acute abdominal conditions (twenty-seven deaths) with a total death rate as follows: chronic appendicitis, 0; acute appendicitis, 0.7 per cent.; perforative appendicitis, 10 per cent.; apendicitis abscess, 6 per cent.; gallbladder operations, 5 per cent.; intestinal obstruction, acute 58 per cent., etc. There was no record of shock per se in these cases. A follow-up record of cases in order to corroborate the diagnosis of chronic appendicitis shows 0.75 per cent. of cures. Eighty per cent. of the cases in which there were acute abdominal conditions, and 60 per cent. of all deaths proceeded directly or indirectly from the appendix.

Operation for Vesicovaginal Fistula.—Watkins advocates thorough dissection of the anterior vaginal wall in the operative treatment of cystocele because it always gives good exposure, supplies a maximum amount of mobilization, and conserves tissue. Retraction and fixation of the injured tissues in chronic cases is an important factor in the pathology and the operative treatment, especially when the sphincter is involved. Deep lateral dissection and firm suture may establish urinary continence in cases in which the vesical sphincter seems to be irreparably damaged.

Dental Rubber Drain.—The drain used by Larkin is made of pure dental rubber gum sheet rolled into a cylinder. The free edge is caught at intervals by interrupted silk sutures to prevent the rubber from unwinding. Holes one-half inch apart are punched through the drain and along its entire length by means of an ordinary ticket punch. The diameter can be varied according to how tightly the rubber is rolled and by the number of turns taken. The punched out holes must be large enough to allow purulent fluid to gain entrance

to the inner layers of the drain. The drain should be well soaked in sterile fluid before using, and when once wet it must be kept moist; otherwise the surfaces will closely unite, preventing drainage.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

37: 1-62 (Jan.) 1925

*Urticaria Pigmentosa in Adults. M. G. Hannay.—p. 1.
*Granuloma Inguinale. A. R. Fraser.—p. 14.
Case of Xanthoma Diabeticorum Treated with Sulphur Derivative of Histidin (2-Thio-4 [or 5]-Amino-Methyl-Glyoxaline). J. E. R. McDonagh.—p. 30.
*Treatment of Psoriasis by Intravenous Injections of Sodium Salicylate. J. F. Smith.—p. 33.

Urticaria Pigmentosa.—An analysis of forty cases of urticaria pigmentosa at or near the age of 15 leads Hannay to conclude that while a certain type of infantile urticaria pigmentosa may be rare in adults, the clinical characteristics usually encountered in adults are frequently seen in children, and cannot be said to constitute a distinct adult type. He suggests that with the present state of knowledge there are no adequate reasons for separating cases of chronic pigmentary urticaria from the main group of urticaria pigmentosa, whether the separation is attempted on the grounds of age incidence, clinical characteristics, or absence of mast cells.

Granuloma Inguinale.—Eighteen cases of granuloma inguinale are summarized by Fraser. Antimony and potassium tartrate (tartar emetic) was employed in sixteen. Six cases healed completely. In ten cases there was no benefit from the intravenous use of this drug. In one case, antimony and potassium tartrate was not employed, and in another the condition healed after administration of sulpharsphenamin. In no case was the rapid healing following the intravenous use of antimony and potassium tartrate, reported by some workers, observed. Local applications were useless. Curettement followed by cauterization was also found to be without value. Cauterization included the actual cautery, phenol (carbolic acid), nitric acid followed by phenol, silver nitrate and many other means. Excision secured temporary healing, and in many cases relapse occurred before healing was complete. Heliotherapy, so useful in healing the ulceration following infection by Ducrey's bacillus, had no beneficial effect on the lesion. Internal medication proved of no assistance. Fraser is convinced that the statement that the disease tends to spontaneous healing is without foundation. There are many attempts at healing, fibrosis and deep cicatrization being characteristic. Complete spontaneous healing, however, never occurs. Antimony is by no means a specific for this condition.

Sodium Salicylate Intravenously in Psoriasis.—Smith's use of intravenous injections of sodium salicylate in the treatment of psoriasis caused the disappearance of the eruption in 16 per cent. of fifty-seven cases, its almost complete disappearance in 18 per cent., and its distinct amelioration in 14 per cent. About one half of the patients were either unimproved or worse. Provided the dose did not exceed 3 gm., no unpleasant effects were noted. Exfoliative dermatitis ensued in 6 per cent. of the cases. Its connection with the treatment is uncertain. Several difficult cases, including one that had resisted a great variety of measures, were cleared by this means.

British Medical Journal, London

1: 197-248 (Jan. 31) 1925

Sympathetic Innervation of Striated Muscle. J. I. Hunter.—p. 197.
Per-Urethral Operations for Prostatic Obstruction. K. M. Walker.—p. 201.
*Surgical Treatment of Chronic Ulcerative Colitis. T. C. Evans.—p. 204.
Endameba as Etiologic Factor in Multiple Abscesses. C. J. H. Sharp and H. Morrison.—p. 205.
*Natural Duration of Cancer. S. Wyard.—p. 206.
Use of Intarvin in Diabetes Mellitus. D. M. Lyon, W. Robson and A. C. White.—p. 207.
*Permeability of Meninges to Sodium Fluorescein as Method in Diagnosis of Meningitis. O. Jervell.—p. 210.
Weak Point in Sterilizing Methods. K. Black.—p. 210.
Diathermy Snare for Removal of Postnasal Growths. E. B. Barnes.—p. 211.
Tinea Roentgen Ray Couch. J. G. Tomkinson.—p. 212.
*Pulmonary Embolism. E. S. Frischmann.—p. 212.
Bilateral Cystic Embryoma of Ovary with Torsion of Pedicle of One Cyst. L. J. F. Bull.—p. 213.

Surgical Treatment of Chronic Ulcerative Colitis.—Evans insists that cases of colitis persisting over two or there months without intermission and with profound emaciation and anemia which do not respond to medical treatment should be handed over to the surgeon. When they reach this stage they are invariably examples of mixed infection, whatever the organism that caused the primary infection may have been. In severe cases the large intestine may be likened to an abscess or bag of pus. In all chronic cases a sigmoidoscopic examination should be made. In one case cited, sigmoidoscopic examination showed the existence of extensive ulceration of the lower bowel and confirmed the diagnosis of chronic ulcerative colitis. The only rational treatment, when the diagnosis is confirmed, is frequent irrigation of the large intestine, either through an appendicostomy or a valvular cecostomy.

Natural Duration of Cancer.—Wyard tabulates the natural duration of life in 1,589 cases of cancer of the rectum, breast, cervix, esophagus, larynx, thyroid and neck. In every case the duration is estimated from the reputed date of onset. None of the cases received any but palliative treatment, which, as regards the rectum, includes colostomy. The impression gained by watching cases of rectal cancer in which colostomy has been performed is that the operation definitely prolongs life.

Permeability of Meninges Aid in Diagnosis of Meningitis.—Experience with eighteen cases of meningitis of various kinds has convinced Jervell that sodium fluorescein, in doses of 0.03 per kilogram of body weight, does not enter the cerebrospinal fluid, or does so only in small quantities if the meninges are not infected. In meningitis the coloring matter enters the fluid in easily demonstrable quantities. If, therefore, by lumbar puncture done three hours after the salt has been given in the doses stated, the spinal fluid shows a distinct greenish fluorescence, one can with great probability diagnose meningitis without making further investigations. If the spinal fluid shows no fluorescence, meningitis can with certainty be excluded. It is not possible to decide what form of meningitis, if any, is present. The passing of the coloring matter into the spinal fluid merely indicates the greater or lesser permeability of the meninges.

Pulmonary Embolism from Pelvic Disease.—Frischmann reports a case of pulmonary embolism followed by thrombosis in the pulmonary artery, the embolus coming from one of the pelvic veins in the neighborhood of the uterus or vagina. These were found at the necropsy to be distended with clot.

Journal of Pathology and Bacteriology, Edinburgh

28: 1-132 (Jan.) 1925

*Mechanism of Hemolysis by Complement Action. A. Hill and G. Parker.—p. 1.
Deviation of Complement in Wassermann Test. A. Hill, R. N. McKinstry and G. Parker.—p. 47.
Regeneration of Lizard's Tail. C. P. White.—p. 63.
*Serologic Classification of Tubercle Bacilli by Agglutination and Absorption of Agglutinins. G. S. Wilson.—p. 69.
*Oxydase Reaction in Acute Myeloid Leukemia. A. Piney.—p. 97.
Platelet Genesis. S. P. Bedson and M. E. Johnston.—p. 101.
*Spirochete-Like Structures in Cerebrospinal Fluid of Animals Used for Experimental Purposes. D. K. Adams, J. W. S. Blacklock and J. A. W. M'Cluskie.—p. 115.
*Spirochetes in Ventricular Fluid of Monkeys Inoculated from Cases of Disseminated Sclerosis. D. K. Adams, J. W. S. Blacklock and J. A. W. M'Cluskie.—p. 117.
Normal Differential Leukocyte Count in South African Natives, Chinese and Others. E. Emrys-Roberts.—p. 119.
Leukocytes in Osteitis Deformans. A. Piney.—p. 122.
Avian Tuberculosis in Marsupial. N. S. Lucas.—p. 123.

Mechanism of Hemolysis by Complement Action.—Hemolysis is ascribed by Hill and Parker to complement acting intracellularly during the time elapsing between its entrance into the cell (under the influence of amboceptor) and its combination with the cell (also under the influence of amboceptor). During this interval it acts as a catalyst, allowing of the release of hemoglobin by the action of a ferment in

the amboceptor. The fermentation is initiated by loosely combined amboceptor, but more ferment is released *pari passu* with the release of hemoglobin. The final fixation of the complement is effected by some other constituent of the firmly combined amboceptor, the quantity of which does not change with the progress of hemolysis.

Serologic Classification of Tubercle Bacilli.—A cultural examination made by Wilson of eighty-nine strains of tubercle and acid-fast bacilli sufficed to divide them into five types, the avian, bovine, human, cold-blooded and acid-fast. A serologic examination of these strains has shown that they may be divided into four types, the bovine and human strains being indistinguishable. The direct agglutination test is of but little value in the classification of individual strains; for this purpose it is essential to employ in addition the absorption of agglutinins. It is also shown that certain well known strains of tubercle bacilli are masquerading under a wrong denomination. No evidence has been found of a multiplicity of types among the human strains.

Oxydase Reaction in Acute Myeloid Leukemia.—Three cases of acute myeloid leukemia were investigated by Piney and the cells were examined. He contends that the completely nongranular myeloblast does not give a positive oxydase reaction and that the development of even a few granules is associated with the appearance of the reaction. A completely nongranular precursor of the granular leukocytes exists but does not give a positive oxydase reaction, which appears only in those cells in which granules are visible with suitable staining and illumination.

Spirochete-Like Structures in Cerebrospinal Fluid.—Spirillar structures have been found by Adams et al. virtually constantly in the cerebrospinal fluid of monkeys, rabbits and guinea-pigs, which must be recognized as a source of confusion with true spirochetes.

Spirochetes in Ventricular Fluid in Sclerosis.—Spirochetes have been found by Adams et al. in the fluid from the lateral ventricles of two monkeys inoculated intraperitoneally with material from cases of disseminated sclerosis. These organisms appear to be similar to those previously found in rabbits inoculated under similar conditions.

Lancet, London

1: 215-264 (Jan. 31) 1925

Appendicitis. A. R. Short.—p. 215.
Basal Metabolic Rate: Its Determination and Interpretation. H. F. Moore.—p. 219.
*Parasmallpox (Alastrim; Amaas). R. P. Garrow.—p. 225.
Bone in Eye: Case. P. Dunn.—p. 229.
Dick Test for Susceptibility to Scarlet Fever. C. B. Ker, J. E. McCartney and J. McGarrity.—p. 230.
Study in Infant Feeding. D. Paterson and R. Darby.—p. 232.

Parasmallpox.—The clinical description of parasmallpox given by Garrow is based entirely on personal observation of 500 cases. The coining of a new name is not intended to suggest the discovery of a new disease, but merely to indicate its recognition as a definite clinical entity, an acute specific infectious disease, moreover, which is fixed in type and does not tend to assume virulence and acquire the death dealing and disfiguring properties of smallpox. The three most remarkable clinical features of the disease are: first, the primary toxemia which was almost universally regarded by both patient and doctor as an ordinary attack of influenza; secondly, the focal lesion, which, smaller and more superficial in the skin than the eruption of smallpox, is accurately described as "pimples"; thirdly, frequently the eruption appears after, it may be several days after, the patient has completely recovered from the initial illness. Apart from secondary infections of the skin like impetigo, etc., the only complications observed in this series were connected with the eyes. They were: blepharitis and conjunctivitis; ulceration of the cornea and keratitis profunda. The mortality of parasmallpox in otherwise healthy subjects is nil. As to the influence of vaccination in the prevention of parasmallpox, no person vaccinated in infancy was attacked under the age of 17 years. No person vaccinated in infancy and revaccinated at any age was attacked.

Quarterly Journal of Medicine, Oxford

18: 133-239 (Jan.) 1925

*Some Factors of Significance in Adolescent Goiter. H. Gardiner-Hill, P. C. Brett and J. Forrest-Smith.—p. 133.
*Case of Virilism Associated with Suprarenal Tumor. G. Holmes.—p. 143.
*Epidemic Encephalitis: Second Winnipeg Outbreak. W. Boyd.—p. 153.
*Sugar Content of Blood in Normal and Undernourished Children; Effect of Fat on Absorption of Carbohydrate. M. J. Brown.—p. 175.
*Geographic Distribution of Exophthalmic Goiter in British Isles. J. M. H. Campbell.—p. 191.
Progressive Lipodystrophy. W. N. B. Watson and W. T. Ritchie.—p. 224.

Adolescent Goiter.—A series of 100 cases of adolescent goiter have been examined by Gardiner-Hill et al. Seventy-nine per cent. corresponded to the colloid type; 16 per cent. were cases of exophthalmic goiter; 3 per cent. were adenomas and 2 per cent. were endemic goiters. In the colloid goiters thyroid function is apparently normal in 42 per cent.; in 32 per cent. there is evidence of hyperthyroidism, and in 26 per cent. evidence of hypothyroidism. Comparison of physical measurements in cases of colloid goiter with the average standards for height and weight shows (1) that a large majority are above height for age, but (2) that when hyperthyroidism is present, the patients are below weight, and when hypothyroidism is present they are above weight for age. Menstruation is normal in about half the cases of colloid goiter, but if hyperthyroidism is present, it tends to be delayed, irregular and scanty; if hypothyroidism is present, it is excessive. Menstruation in exophthalmic goiter is normal in one fourth of the cases; in the remainder it is frequently absent. Basal metabolism estimations provide a further means of grouping these cases; the results correspond to those obtained in adults, but the variation from the normal is not so great. Blood sugar curves in the cases with normal thyroid function differ from those obtained in the cases with abnormal function. In both hyperthyroidism and hypothyroidism there is a definite delay in the curve, though hyperthyroidism produces a higher blood sugar content.

Virilism with Suprarenal Tumor.—The case recorded by Holmes is that of a young woman in whom a large slowly growing tumor of the cortex of the right suprarenal was associated with changes in the sex organs (atrophy of the uterus; overgrowth of clitoris), disturbances of the sexual functions (cessation of menstruation for nine years), alteration in the secondary sex characters (growth of hair, atrophy of mammae, change in the distribution of fat, and masculine appearance in limbs), and psychic changes (loss of erotic feelings, lack of modesty), all of which symptoms disappeared within a relatively short time after the removal of the tumor and left the patient again an apparently normal woman. The long period during which the patient was under observation both before (two years) and after the operation (nine years) gives additional interest to the case.

Epidemic Encephalitis.—The clinical features of two epidemics of lethargic encephalitis in Winnipeg during the winters of 1919-1920 and 1922-1923, respectively, are reviewed by Boyd. They were in the first epidemic of the somnolent type, and in the second epidemic of the excited type. The different forms of pathologic lesions in the brain are described. Evidence is adduced to prove that at least the greater portion of the hardening in the arteries of the basal ganglions is due to calcification.

Effect of Fat on Absorption of Carbohydrate.—So far as blood sugar tolerance tests made by Brown are concerned, they supply no evidence that a high fat content in the diet interferes with the rate of absorption of the carbohydrate in the diet.

Deaths from Exophthalmic Goiter in British Isles.—The deaths which are recorded as from exophthalmic goiter in the British registrar general's reports have a very definite geographic distribution. Exophthalmic goiter in this sense is most common in Cornwall, Devon and Somerset; in Wales (excluding the coal district in the south); in Westmorland and parts of Lancashire and Yorkshire; and in the southern counties of Scotland. It is least common in three densely populated areas, Essex, Middlesex and Hertford, Glamorgan and Monmouth, and Durham. These deaths are mainly from true exophthalmic goiter rather than from hyperthyroidism following adenoma.

Annales de Médecine, Paris

16: 469-584 (Dec.) 1924

*Normal Temperature of Human Body. F. Bezançon.—p. 469.
Regulation of Heat. J. Gautrelet.—p. 487.
*Fever and Pulmonary Tuberculosis. F. Bezançon.—p. 496.
*Infectious Fevers and Protein Fevers. Bezançon and Weil.—p. 522.
Pharmacodynamic Study of Antipyretics. M. Tiffeneau.—p. 557.

Normal Temperature of Human Body.—Bezançon discusses the diagnostic importance of the rise of temperature on walking in cases of suspected tuberculosis, saying that the test is significant only if the reaction is not merely an elevation in temperature, which is subject to many chance variations, but a persistence of the higher temperature after an hour's rest. Otherwise, the temperature is valuable in its indications only when the person is in repose.

Fever and Pulmonary Tuberculosis.—Bezançon describes the types of fever in the different forms of tuberculosis and the irregularity of the temperature, spontaneous or induced by walking, by tuberculin, or by saline, and discusses the puzzling pyrexias often observed in the clinic. Although this abnormally high temperature in many cases reveals tuberculosis, developing insidiously, it may also be an unreliable guide, as it occurs in a number of infections and, outside of all infections, in certain states connected with changes in metabolism due to functional disturbances of the endocrine glands or the sympathetic nervous system. The cases with slight elevation in temperature are most often observed in women, in whom the differential diagnosis between physiologic states of elevated temperature and pathologic subfebrile states presents most difficulty.

Infectious Fevers and Protein Fevers.—Almost all types of infectious fever may be produced experimentally by the use of protein substances, simply by varying the manner of introduction. Several injections in animals of an extract of the proteins of typhoid bacilli, in small doses, will induce a fever in every way comparable to the fever in typhoid in man. The origin of the protein matters little. An identical experimental result may, for instance, be obtained by injections of egg albumin. But only small doses of proteins induce fever; large doses induce hypothermia and death. Bezançon and Weil state that the infectious fever itself is due, not to the germs or to a more or less uncertain pyretogenous toxin, but to the proteolysis induced or the products of bacteriolytic disintegration in an organism predisposed by its hormones. In Vaughan's experiments, the temperature did not rise until repeated subcutaneous injections had sensitized the animal. Similarly, at the beginning of infectious diseases there is usually a varying period of incubation. The fever seems to be an anaphylactic manifestation, and due to the protein shock plus organic susceptibility. The manner and rapidity of the introduction of the foreign protein, its quantity, and the degree of susceptibility in the subject explain the different types of fever observed.

17: 5-88 (Jan.) 1925

*Experimental Tuberculous Infection. Philibert and Cordey.—p. 5.
*A Special Form of Renal Syphilis. A. Mouktar.—p. 48.
*Sedimentation Speed of Erythrocytes. Popper and Kreindler.—p. 57.

Experimental Tuberculous Reinfection in Rabbits.—Philibert and Corday found that when infection and reinfection were induced by the same route (intratracheal), the lungs, far from being protected, were made more receptive to the second inoculation. The lesions appeared more rapidly and were more extensive, and with massive reinoculation doses, large cavities could be produced. These results were independent of the interval between inoculation and reinoculation, and the age of the animal. While they object to the identification of tuberculosis in guinea-pigs and in man and do not wish to reason from the rabbit to man, yet they point to the fact that tuberculosis in the rabbit most closely resembles tuberculosis in man, and consider comparison between the two as instructive.

Unusual Form of Renal Syphilis.—After reviewing six of the nine cases with marked albuminuria, polyuria, and decrease in the specific gravity of the urine, Mouktar reports that the patients examined two or four years after treatment were in a satisfactory condition and able to work. The prognosis in such cases naturally depends on the stage of the affection when the antisyphilitic treatment is begun. The treatment should be careful but sufficient. Mercury seemed the most effective agent against the renal lesions. He found no definite results from treatment with potassium iodid, and considers its value doubtful.

Sedimentation Speed of Erythrocytes.—Popper and Kreindler examined the sedimentation speed in over 250 patients, in many instances several times during the course of the disease. The results convinced them that this reaction may be a valuable help in diagnosis and prognosis in numerous affections, and with the simplicity of the technic they believe it deserves daily use. Every organic modification which affects the equilibrium of the plasma reflects in the sedimentation speed the amount of destruction of cells going on. Extensive study in the tuberculosis cases indicates the real value of the sedimentation speed in diagnosis and prognosis in tuberculosis. The foci of active tuberculosis in the organism modify the plasma formula by increasing the fibrinogen and globulin, thus causing an acceleration in sedimentation. As a general rule, all progressing pulmonary affections show accelerated sedimentation, even with minimal lesions not yet discoverable on clinical and radiographic examination.

Archives des Maladies du Cœur, etc., Paris

18: 1-64 (Jan.) 1925

Case of Acute Leukemia. M. Letulle and A. Jacquelin.—p. 1.
Aortic Stenosis, Not of Rheumatic Origin, in a Child. L. Calandre and C. Sainz de los Terreros.—p. 34.
*Adams-Stokes Disease in a Nonsyphilitic. G. Bickel.—p. 39.
Arterial Hypertension and Arteriosclerosis. J. Meyer.—p. 47.

Adams-Stokes Disease, with Heart Block, Exaggerated by Neo-Arsphenamin Treatment.—Bickel's patient, aged 48, without a history of syphilis, presented complete auriculoventricular block. Tentative antisyphilitic treatment not only had no favorable results, but coincided with a definite aggravation. Death occurred suddenly some weeks afterward. The electrocardiograms clearly showed variations in the heart block parallel to the treatment. Bickel says that the antisyphilitic treatment frequently prescribed for all cases of heart block, even with no history of syphilis and negative Wassermann test, may be dangerous. The Adams-Stokes syndrome may result from a number of different processes, of which syphilis is only one. He considers the syndrome in his case the result of obesity changes.

Archives de Médecine des Enfants, Paris

28: 1-72 (Jan.) 1925

Cases of Scurvy in Children. J. Comby.—p. 1.
Weight of Diabetic Children Under Insulin. P. Nobécourt.—p. 23.
Encysted Serous Pleurisy in Child. E. Apert and R. Garcin.—p. 30.
*Shock from Albumin Water in Infant. Condat.—p. 36.
*Artificial Pneumothorax in Child. Bigart et al.—p. 40.
Roentgen Rays and Diathermy in Treatment of Acute Poliomyelitis. J. Comby.—p. 44.

Shock from Albumin Water in Infant.—Condat reports a case of shock due to ingestion of some raw white of egg, beaten up in water, in an infant, 5 months old, with an arthritic and nervous heredity. The child, artificially fed, and affected with eczema, suffered from diarrhea. Administration of the *eau albumineuse*—a household remedy—induced a severe colloidoclastic shock two hours later.

Artificial Pneumothorax for Pulmonary Cavity in Child.—Bigart, Schreiber and Bonnet treated successfully a tuberculous cavity in the lung by artificial pneumothorax, in a boy, aged 8 years. Considerable general improvement, as well as the local, has persisted for the three years to date.

Bulletins de la Société Médicale des Hôpitaux, Paris

49: 131-163 (Jan. 30) 1925

*Pathogenesis of Hirsutism. E. Apert.—p. 131.
Positive Wassermann Test in Sarcoma of Brain. M. Pinard.—p. 136.
*Gout as Causal Factor in Serum Sickness. Cot and Pasteur.—p. 139.
Spontaneous Fracture of Ossified Costal Cartilage. P. Ameuille.—p. 147.
Sudden Death on Puncture of the Pleura. M. Léon-Kindberg.—p. 150.
*Nephritis with Cancer. M. Renaud.—p. 155.

Suprarenal Cortex as Factor in Hirsutism.—Describing a case in a young woman, Apert relates that the syndrome of hirsutism is mostly produced by proliferation of the supra-

renal cortex. He cites two cases, one in a girl, 3 years old, in which hirsutism improved after removal of an ovarian tumor containing suprarenal tissue. The attenuated physiologic hirsutism of pregnancy may also be ascribed to hypertrophy of the suprarenal cortex, as well as of lutein tissue in the large corpus luteum. The explanation is the common origin of the ovary and of the suprarenals in the embryo, and the histologic resemblance between the corpus luteum and the suprarenal cortex.

Is Serum Sickness a Manifestation of Latent Gout?—The neuritic amyotrophia, which occurred in Cot and Pasteur's case after an injection of antitetanus serum, was confined to the muscles of the left shoulder and calf. Intense joint pains and paresis accompanied the loss of muscular force. Blood examination indicated a gouty diathesis. Generalizing from this and other cases, they suggest that serum sickness may be a manifestation of a latent gout. As a preventive measure, sodum citrate (0.75 gm. four times a day) was given to fifty persons with traumatic lesions calling for antitetanus serotherapy. This treatment was given the day of the first tetanus antiserum injection, and was continued for ten days. None of those thus treated developed serum sickness.

Nephritis with Cancer.—Renaud's research included 200 cancer patients, the functional kidney tests confirmed by microscopic examination in nearly 100 instances. Nephritis and kidney insufficiency proved to be a tardy and indirect manifestation in malignant disease. Renal disturbances may exist in malignant disease, but there is no actual cancer nephritis.

Journal des Praticiens, Paris

39: 49-64 (Jan. 24) 1925

*Migraine in Children. R. Debré.—p. 49.

Migraine in Children.—Besides the typical forms, somewhat abnormal types occur in which the diagnosis is difficult, because the headache is not severe and the ocular disturbances, vomiting and abdominal pain predominate. Debré points to the resulting frequent errors in diagnosis, and reports three such instances in children, aged 9 to nearly 15. He suggests a general treatment to reduce the tendency to the paroxysms. Headaches from thyroid insufficiency are persistent and not paroxysmal, yet if examination of a child with migraine suggests a possibility of thyroid insufficiency, treatment with thyroid extract may profitably be given. Pagniez and Vallery-Radot ascribe migraine to anaphylactic phenomena. Close attention to the diet is advised, to avoid food which might be incriminated for the anaphylaxis. Anti-anaphylactic treatment by ingestion of peptone is recommended, 0.1 to 0.3 gm. fifteen minutes before meals, in a teaspoonful of honey or preserve.

Presse Médicale, Paris

33: 177-200 (Feb. 11) 1925

Morbid Anatomy of Cheesy Pneumonia. M. Letulle and F. Bezançon.—p. 177.
*Continent Artificial Anus. O. Lambret.—p. 183.
Method for Dissolving Bladder Calculi. J. Meyer.—p. 187.
Intravenous Use of Mercurochrome. R. Clément.—p. 188.

Continent Artificial Anus.—Lambret illustrates the technic for an iliac artificial anus, projecting like a spout. The protruding stump is not tender, and can be conveniently turned about or bent, without causing discomfort. The anus is completely continent in the intervals as the long tube is pressed tight against the abdominal wall by a band strapped around the waist, a strip of adhesive plaster, or a truss.

Revue de Médecine, Paris

41: 585-644, 1924

Anomalies in the Ventricular Electrocardiogram from the Standpoint of Prognosis. A. Clerc and M. Bascourret.—p. 587.
Progressive Rheumatic Heart Disease in Children: Three Cases. E. Pichon.—p. 608.

Schweizerische medizinische Wochenschrift, Basel

55: 65-88 (Jan. 22) 1925

*Prophylaxis of Goiter. F. de Quervain.—p. 65.
Case of Seminoma. H. Ryser.—p. 68.
*Significance of Phagocytosis. W. Tobler.—p. 70.
Statistics of Cancer in Canton of Glarus. F. Lichtenhahn.—p. 74.

Prophylaxis of Goiter.—De Quervain cites Fellenberg's statistics showing that in the Swiss districts with endemic goiter the food, especially milk and water, contains on an average only two fifths as much iodin as in the districts in which goiter is rare. Also the amount of iodin eliminated in urine is threefold higher in territories with rare goiter than in those with frequent goiter. Iodin, stored in the thyroid, takes an important part in the assimilation of proteins. The products which may cause goiter become harmless under the influence of iodin. Referring, among others, to Gaylord and McCarrison's success in preventing goiter in trout, pigeons and dogs with a minimal amount of iodin, de Quervain commends the plan of iodizing table salt, but insists that the amount of iodin added should be calculated to conform to the local average deficit of salt in the food in different regions. The rare instances of exophthalmic goiter brought on by iodin were mostly from self-drugging or, at least, without medical supervision.

Rôle of Phagocytes in Organism.—Tobler believes that certain bacteria which are not destroyed by phagocytosis, but encapsulated in the leukocytes, are carried to the hematopoietic organs. Their presence causes concentration of antigens and an intense production of antibodies in those organs. Then destruction of the bacteria occurs. He agrees with Sahli that the leukocytes may share directly in immunization, by secretion of specific antibodies. The antitoxic function of the leukocytes protects the organism against bacterial products in infections. The activity of the phagocytes is also manifest in the localization of an infectious focus. The leukocytes, by means of their ferments, aid in maintaining the balance in metabolism. The blood of healthy breast-fed infants has less bactericidal action on *Staphylococcus aureus* than the blood of healthy artificially fed infants. The artificial feeding creates an unfavorable condition for development of the infantile organism. Consequently, an enhanced functioning is required of all the cells, including the leukocytes. This exaggerated activity may entail exhaustion of the leukocytes, and a disturbed metabolism more readily than in the breast fed.

55: 89-112 (Jan. 29) 1925

*Occupational Eczema. B. Bloch.—p. 89.
Technic for Aspiration, Irrigation and Drainage. C. Reinert.—p. 93.
Frey's "Constitution and Morphology." B. Aschner.—p. 101.
Cures from Suggestion in Dermatology. Bonjour.—p. 102.

Pathogenesis of Occupational Eczema.—Bloch emphasizes that occupational eczema is a manifestation of an idiosyncrasy, an extra susceptibility of the skin, and a constitutional predisposition. The eczema reaction occurs more readily with turpentine, quinin, formaldehyd, etc. Contact with one of these—not endogenous eczema-producing substances—is generally responsible for the affection.

Pediatria, Naples

33: 113-168 (Feb. 1) 1925

Typhoid in Children. M. Gerbasi.—p. 113.
*Splitting of Alimentary Fat in Nurslings. Bentivoglio.—p. 123.
*Exfoliative Dermatitis and Erythrodermia. A. Ronchi.—p. 131.
Streptothrix Meningitis. A. Laurinsich.—p. 139.
Lymphatic Leukemia with Tuberculosis and Endocrine Derangement. F. Redlich.—p. 144.

Splitting of Alimentary Fat in Young Infants.—Bentivoglio publishes his investigations on the presence of neutral fat, fatty acids and soaps in the feces of infants.

Exfoliative Dermatitis and Erythrodermia.—Ronchi concludes that Leiner's erythrodermia is of inflammatory origin, and identical with Ritter's exfoliative dermatitis of infants.

Memorias do Instituto Oswaldo Cruz, Rio de Janeiro

17: 1-227, 1924

*The Fight Against Scorpions. E. Dias et al.—p. 5.
Some Nematodes of Aplectana Genus. C. Miranda.—p. 45.
Study of Life History of Brazilian Endotrematodes. A. Lutz.—p. 55.
*Catalogue of Brazilian Species of Trematodes. L. Viana.—p. 95.

The Scorpion Pest.—Dias, Libanio and Lisboa state that the Cruz Institute has been able to secure 107,533 living or

dead specimens of scorpions in a recent six-year period, for production of its scorpion antivenin. Paying a bounty helps to reduce the number in a town. Fowls seem to be resistant to scorpion stings, and eat the scorpions with impunity. Scorpions generally get into the house in firewood, and hence it is important to have the wood piled where fowls can have free access to it. Giving large numbers of chickens the run of the grounds close around the house is an important preventive measure. The main reliance, however, must be on building to exclude rats, scorpions and other vermin. In Brazil this would exclude various diseases by keeping out the insect intermediate hosts.

Cataloguing Brazilian Trematodes.—Viana devotes 132 pages to a classified list, an alphabetical list, and the bibliography on the Brazilian species of trematodes.

Lisboa Médica, Lisbon

1: 545-600, 1924

*Recurring Gonococcal Endocarditis. M. Moreira.—p. 545.
*Creatininemia in Diagnosis and Prognosis. A. Costa.—p. 557.
*Transfusion of Own Blood. Amândio Pinto.—p. 577.

Recurring Gonococcal Endocarditis.—Moreira's patient required hospital care three times in two years for gonococcal orchitis, acute polyarthritis and endocarditis. At the third attack the endocarditis was of a more malignant type, and there were no signs of arthritis which had predominated at the first and second attacks. Necropsy revealed the gonococcus in pure culture in the mitral valve vegetations. It had been cultivated likewise from the blood during life. The case shows that gonococcal endocarditis may develop with a syndrome similar to that of endocarditis lenta.

Creatinin in the Blood in Kidney Disease.—Costa prefers the Myers test, and describes its application to twenty healthy persons and in thirty cases of various kidney affections. In the normal group, the creatinin content of the blood ranged between 1 and 2.5 mg. per hundred cubic centimeters of blood. In the cases of chronic nephritis the figure surpassed 2.5 mg., but when the range was between 2.5 and 5 mg., the patients improved under treatment. A creatininemia above 5 mg. was often, but not inevitably, soon followed by death. Tests for retention of creatinin are thus useful in diagnosis, and are especially instructive for the prognosis.

Autotransfusion of Blood.—Pinto did not venture general anesthesia in one of the three cases he describes, as the anemia from the tubal hemorrhage was too intense. After intravenous injection of physiologic sodium chlorid solution, he opened the abdomen under local anesthesia, and thus obtained as much blood for transfusion as he thought he would use. Not until after this did he ligate the vascular pedicle of the pregnant tube. The three women promptly recovered.

Semana Médica, Buenos Aires

1: 173-228 (Jan. 22) 1925

*Anthrax Meningo-Encephalitis. J. R. Paso and A. Barni.—p. 173.
Antityphoid Serum. J. W. Howard.—p. 212.
Expert Testimony on a Paranoid Syndrome. P. B. Aquino.—p. 218.

Anthrax Involving the Brain.—Paso and Barni give an illustrated description of the case of a man, aged 58, with an anthrax pustule above his left eyebrow. The fifth day symptoms developed showing involvement of brain and meninges, fatal in thirty hours. They summarize from the records about thirty-one cases with similar metastatic meningitis or encephalitis or both, four published in South America.

1: 229-288 (Jan. 29) 1925

*Curetting in Eclampsia. J. A. Beruti and M. Isaac.—p. 229.
Principles for Treatment of Mental Disease. J. C. Vivaldo.—p. 234.
*Infectious Chicken Sarcoma. J. Llambias and D. Brachetto-Brian.—p. 243.

Curetting the Uterus in Eclampsia Late in the Puerperium.—In Beruti and Isaac's case, the convulsions had begun suddenly, with fever, the eighth day after normal delivery; they were refractory to all measures. After forty-five convulsions in forty-eight hours, they curetted the uterus, evacuating fetid and adherent scraps of placenta. Recovery was slow but complete, with a briefly transient puerperal psychosis. Such a tardy onset of the eclampsia calls for curettement as the routine procedure, they reiterate.

Infectious Chicken Sarcoma.—Llambias and Brachetto Brian give seventy-seven illustrations of the findings in their experimental research on the Peyton-Rous chicken sarcoma. They show that the proliferation occurs both from it and the normal cells cancerized by it. Both in structure and in constant reproduction of the same fundamental type of neoplasm, it seems to be identical with sarcoma in man and animals. The resemblance to the myxosarcoma type is most complete.

Archiv für klinische Chirurgie, Berlin

134: 1-208 (Jan. 26) 1925

*Biologic Treatment of Adhesions. H. Naumann.—p. 1.
Cholecystogastrostomy in Gastric Ulcer. N. Bogoras.—p. 42.
Stomach Operations from 1907 to 1922. E. Birgfeld.—p. 51.
Pathologic Anatomy of Fracture of Neck of Femur. F. Hesse.—p. 141.
Blood Production Outside of Bone Marrow in Surgical Affections. H. Dieterich.—p. 166.
No Tendency to Tetany in Goiter Patients After Thyroidectomy. H. Steichele and A. Schlosser.—p. 176.
Local Loss of Calcium from Living Bones. C. B. Strauch.—p. 181.
"Arthritis Deformans After Trauma of Hip Joint." I. Heine.—p. 191. Reply. R. Bonn.—p. 196.
Malformations of Bile Ducts. E. Just.—p. 203.
Arrest of Hemorrhage by Blood Transfusion. A. Kubányi.—p. 206.

Biologic Treatment and Prevention of Adhesions.—Basing his experiments on the fact that a purulent, exudative peritonitis often heals without adhesions, and that the biologic ferments are probably responsible for this, Naumann studied the proteolytic action of leukoproteases and pepsin on experimental adhesions, chiefly in dogs. He used autolyzed pus from a turpentine abscess, or experimental inflammation was induced in the preperitoneal connective tissue by injection of turpentine in physiologic sodium chlorid solution. The latter method imitates more closely the natural destructive action on the adhesions in peritonitis. The ferments are able to break up typical adhesions or hinder the formation of adhesions. He regards this method, therefore, as a biologic prophylaxis against adhesions, preferable to all chemical and mechanical means. The injection into the peritoneum is best made at the close of the operation, remote from the incision, to prevent autodrainage of the abscess through the incision. Injury of the peritoneum must be carefully guarded against. In man, 1.5 to 2 c.c. of turpentine suffices, after mechanical stretching of the preperitoneal connective tissue by the injection of 50 to 100 c.c. of physiologic sodium chlorid solution. No injury from these doses was observed in the dogs, either in the peritoneum or the kidneys. The camphor-like action of the turpentine on the heart may be considered as an advantage of the method.

Dermatologische Wochenschrift, Leipzig

80: 113-152 (Jan. 24) 1925

Calcium Deposits in the Skin. H. Guhrauer.—p. 113.
*Intravenous Bromid Treatment in Skin Disease. C. Wolff.—p. 116.
"Solar Leukoderma." A. A. Feldmann.—p. 117.
Transmission of Congenital Syphilis. Rietschel.—p. 123. Conc'n.
Legal Regulations Against Venereal Disease. Delbanco.—p. 127. Conc'n.

Intravenous Sodium Bromid Treatment in Itching Skin Diseases.—Wolff reports the results in eczema and other itching dermatoses as prompt and favorable. In his ten cases he injected (according to Lebedjew) 5 c.c. of a 10 per cent. solution of sodium bromid in physiologic salt solution on the first day, then 10 c.c. on the second and following days, to a total of three or four injections. The itching was often relieved by a single injection. The benefit was most striking in a case of intense chronic senile pruritus in a man of 86.

Deutsche medizinische Wochenschrift, Berlin

51: 175-216 (Jan. 30) 1925

*Gynecology. G. Winter.—p. 175.
*Insulin Hypoglycemia and Spasms. E. Laqueur et al.—p. 178.
*Vital Staining of Sediments. R. Seyderhelm.—p. 180.
Compensation Colorimeter. W. Lampe.—p. 181.
*Endogenous Psychoses. R. Weichbrodt.—p. 182.
*Sanocrysin. Bacmeister.—p. 184.
*Glaucoma and General Medicine. C. Hamburger.—p. 186.
*Surgery in Diphtheria. O. Connerth.—p. 188.
Histology of Basal Ganglions. W. Riese.—p. 189.
*Regulation of Gas Metabolism of Fetus. W. Schmitt.—p. 189.
Liver Function Tests in Infants. O. Bossert.—p. 190.
Surgery in Children. W. Kausch.—p. 190. Conc'n.

Percussion of Lungs in Children. J. S. Arkawin.—p. 192.
Treatment of Quinin-Resistant Malaria. O. Kluge.—p. 193.
Apparatus for Insufflating Powder into Vagina. Guttmann.—p. 193.
Recent Progress in Ophthalmology. Triebenstein.—p. 194. Conc'n.
Infant Mortality in the Hanse Towns. Klotz.—p. 196. Conc'n.
Tuberculosis Sanatoriums and Social Insurance. Bochalli.—p. 197.
Some Medicolegal Questions. Ebermayer.—p. 197. Conc'n.
War and Medical Bibliography. Kuntze.—p. 199.
Scurvy and Rickets. E. Stettner.—p. 211.

Gynecology.—Winter, retiring from his teaching position, gives a retrospective survey of the chief problems in which he was interested. He had good results with his propaganda for early examination for cancer of the uterus, and for prevention of puerperal fever. The war impaired much of what had been attained before. He is satisfied with his victory in the conservative treatment of retention of placental scraps or pieces of fetal membranes. One of his special fields of work was the clinical and anatomic problems of myomas. He was less interested in the treatment, but he was practically forced by the Polish Jewesses to perform only conservative operations, such as are generally accepted now in younger women. Conservatism in the indications for artificial abortions, and especially for sterilization, was always his attitude.

Insulin Hypoglycemia and Spasms.—Laqueur, Grevenstuk and de Jongh deny a direct connection between the hypoglycemia and the spasms after insulin. It is not impossible that the hypoglycemia constitutes the irritant, but the production of other spasmogenic substances is more probable. The purer the preparation, the less spasms were observed. Therefore, spasms should not be used as a gage in standardization of insulin.

Vital Staining of Sediments.—Seyderhelm adds to the urine sediment a mixture of Congo-red and trypan-blue. Leukocytes derived from recently inflamed foci do not accept the stain. The healing of a cystitis can be easily followed by the increasing percentage of stained cells.

Endogenous Psychoses.—Weichbrodt had fair results in the excitement stages of psychoses, with two intravenous injections of 10 c.c. of a 20 per cent. sodium salicylate solution. Anxiety and climacteric psychoses gave the best results. Hallucinations disappeared for a time.

Sanocrysin.—Bacmeister deplores the fact that the newspapers have awakened in patients hopes for which there is, as yet, no foundation.

Glaucoma and General Medicine.—Hamburger believes that glaucoma is due to a loss of tonus of the vasoconstrictors, with subsequent stasis. All the therapeutic procedures—including the operations and his subconjunctival injection of epinephrin—act by producing an active hyperemia.

Surgery in Diphtheria.—Connerth concludes from the eighty-one cases of laryngeal diphtheria treated at Peiper's clinic, that tracheotomy is superior to intubation in children under 2 years of age. Expectant treatment gave worse results.

Regulation of Gas Metabolism of Fetus.—Schmitt found a great reactivity of placenta vessels to various stimuli—in spite of the absence of nerves. They contract when oxygen is added, and dilate when other gases replace it. Carbon dioxid does not dilate them any more than nitrogen. An increased concentration of hydrogen ions dilates the vessels; a decreased concentration contracts them. These findings are sufficient to explain the regulation of the oxygen intake of the fetus. The placenta serves not only as lungs, but also as a respiratory center.

51: 217-258 (Feb. 6) 1925

Constitution, Treatment, Hygiene. H. Günther.—p. 217.
*Roentgen Examination of Goiter. M. Sgalitzer.—p. 219.
*Freund's Operation for Emphysema. J. Petermann.—p. 221.
Myomas of the Skin. W. Asal.—p. 221.
*Puerperal Fever. H. Küstner.—p 222
Paratyphoid B and Breslau Gastro-Enteritis Strain L. Bitter.—p. 226.
Idem. E. Fraenkel and H. Much.—p. 228.
Gangrene of Testis. A. Buschke.—p. 229.
Blood Colloids in Tuberculosis. G. Deusch.—p. 229.
*Intermediary Decomposition of Cholesterol. H. Beumer.—p. 230.
*Pulsion Diverticulum of Esophagus. T. Hitzig.—p. 231.
Hernias. K. Heise.—p. 231.
Needle for Thoracocentesis. F. Krische.—p. 233.
Jena Quartz Lamp. Axmann.—p. 234.
Anesthetics Containing Halogen. E. von der Porten.—p. 234.
Survey on Psychiatry. Bostroem.—p. 235.
Measurements of Scandinavian Children. K. Freudenberg.—p. 237.
Old Chinese Pharmaceutics. H. Thoms.—p. 239.

Roentgen Examination of Goiter.—Sgalitzer deals with the importance of roentgenoscopic examination of the trachea in goiter. A softening is easily recognized by its greater excursions during the Valsalva and Müller experiments. The former blows the soft trachea up, the latter—which consists in an inspiratory effort with mouth and nose closed—causes a collapse. Skiascopy also localizes exactly the seat and direction of the pressure. Therefore it prevents the possibility of removing a large innocent lobe and leaving a small node or substernal goiter which in reality caused the compression. A substernal goiter which follows the trachea in swallowing movements is easily operable. It may be removed prophylactically even if it is not at the time causing dangerous symptoms.

Freund's Operation for Emphysema.—Petermann had fine results with Freund's resection of the cartilages of the second to the fifth rib in seven emphysema patients. The operation cannot help in elderly subjects with emphysema of long standing. Irregular thickening and elongation of the ribs, the roentgen picture and exploratory puncture with a needle indicate that the particular case is due to a change of the cartilage, and suitable for the operation.

Puerperal Fever.—Küstner advises to empty the uterus in infected abortions and puerperal fever. He had fair results with intravenous injection of a mixture of 0.3 gm. of neoarsphenamin in 8 c.c. of water with 2 c.c. of a 1 per cent. solution of mercuric chlorid.

The Question of the Intermediary Decomposition of Cholesterol.—Beumer found just as much cholesterol in fasting puppies as in fed controls, in spite of the loss in weight. He concludes that cholesterol is not destroyed in the organism. He also found that it may be synthetized from certain unknown constituents of food.

Pulsion Diverticulum of Esophagus.—Hitzig reports his own case history. He finds that regurgitation of always the same amount of fluid—no matter whether the subject has drunk one or three glasses of fluid—speaks for a diverticulum. Aspirations are frequent. He had many attacks of bronchopneumonia.

Deutsche Zeitschrift für Chirurgie, Leipzig

189: 253-422 (Jan.) 1925

Repair of Striated Muscles. E. Schwarz.—p. 253.
*Vasoconstrictor Substances in Blood. P. Stradin.—p. 269.
"Lattice Lung" and Repair of Chest Wall. M. Lebsche.—p. 279.
Operations in Biliary Tract from 1913 to 1923. M. Biebl.—p. 283.
Gastro-Enterostomy and Resection in Chronic Gastric Ulcer. R. Wanke.—p. 307.
Inversion and Invagination of Tumors in Meckel's Diverticulum. F. Kaspar.—p. 371.
Injuries from Indelible Pencil. E. Glass and E. Krüger.—p. 382.
Experimental Rotation and Dislocation of Humerus. R. Sommer.—p. 392.
*Splanchnic Anesthesia. P. Graf.—p. 400.
Tumors of Spermatic Cord. F. Starlinger.—p. 408.
Muscle Transplants for Quadriceps Paralysis. E. Schepelmann.—p. 414.
Snapping Knee Due to Torn Semilunar Cartilage. E. Clemen.—p. 417.
*Statistics on Sarcoma. H. Schoenecke.—p. 420.

Vasoconstrictor Substances in Blood in Angioneurotic Gangrene and Intermittent Claudication.—To estimate these substances, Stradin recommends the method of perfusion of the isolated rabbit ear with the blood. Previous estimates of the epinephrin content of the peripheral blood are not supported by Stradin's findings in seventy tests, in six healthy and twenty-six sick persons (seventeen with spontaneous gangrene in the lower extremities or intermittent limping). While the origin of the vasoconstricting substances was not found, at any rate it is not chiefly epinephrin. Their formation is apparently connected with the coagulation processes. In their action they resemble that of the proteinogenous amins. Parallel examination of blood, plasma, and serum is necessary. The examination of plasma and serum in angioneurotic gangrene cases gave very indefinite results. Great variations appeared in the serum (occasionally somewhat higher constriction than in the normal subject). The plasma and the blood showed slighter vasoconstrictor effect than the serum, in certain instances even a dilatation.

Splanchnic Anesthesia According to Kappis.—After 325 operations under the Kappis anesthesia method, Graf now reports his 266 cases during the last 3½ years (which include 76 per cent. of his stomach operations). He considers that no one has proved a lower mortality with the method, although the death rate was only 4 per cent. in his 128 ulcer resections. He feels, however, that the patients stand long surgical interventions better, with better pulse at the end of the operation, practically never require camphor, and recover quickly during the hours following, yet he believes the same results can be attained under general anesthesia with a perfected technic. With the supplementary administration of morphin or a small quantity of ether, etc., 70 to 90 per cent. of all abdominal operations might be made under splanchnic anesthesia. The grave risk due to the accompanying great drop in blood pressure is the serious defect of the method. Further experience is needed before the results can warrant a definite judgment on the value of the Kappis method and the extent of its applicability.

Statistics on 102 Sarcoma Cases.—Seventy-two of Schoenecke's cases were osteosarcomas (23.6 per cent. preceded by trauma), and 30 were chiefly in the glands, glandular organs or muscles. Of the 14 cases with radiotherapy one was almost cured and 35.6 per cent. died (the highest mortality). In the 25 cases with curettement treatment, 9 were cured and the mortality was 24 per cent.

Klinische Wochenschrift, Berlin

4: 193-240 (Jan. 29) 1925

Treatment of Hypertension. R. Siebeck.—p. 193.
*Viscosity and Colloid State. E. A. Hafner.—p. 197.
*Physiology of the Gastric Motor Function. A. Bickel.—p. 200.
Insensible Perspiration. A. Schwenkenbecher.—p. 202.
*Blood-Borne Pulmonary Tuberculosis. Amelung and von Hecker.—p. 204.
*Digitalis by the Rectum. A. Reinhold.—p. 207.
*Herpes Simplex Virus in Zoster. A. Luger and E. Lauda.—p. 209.
*The Shellac Reaction. A. Marchionini.—p. 211.
"Nontetanoid Changes of Irritability." Behrendt and Hopmann.—p. 212.
"Mother of Quintuplets." L. Fraenkel.—p. 212.
*"Action of Cholesterol on Blood and Weight." K. Reicher.—p. 212.
Action of Blood on Germs. C. Prausnitz and G. Meissner.—p. 212.
*The Cerebrospinal Fluid in Young Infants. Mader and Saenger.—p. 213.
*Cerebrospinal Fluid in Pernicious Malaria. A. Floros.—p. 214.
Pulmonary Abscess. H. Dorendorf.—p. 215.
*Mortality from Infectious Diseases. H. Schmidt.—p. 218.
Chemistry of Cancer Patients. H. Kahn.—p. 222. Conc'n.
Treatment of Rickets. S. Rosenbaum.—p. 237.
Cholesterol in Surgical Affections. E. Herrmann.—p. 237.
Pituitary Preparations. Bijlsma.—p. 238.

Viscosity and Colloid State.—Hafner introduces a new term "Zustandsviscosität" which indicates changes of hydration, dispersity and other qualities of colloids, independent of their concentration.

Physiology of the Gastric Motor Function.—Bickel reviews the investigations which were made in his institute on the nerve mechanism for tonus and peristalsis of the stomach. The tonus is independent of the peristalsis. Acetylcholin increases only the former. Both functions are depressed after combined resection of the sympathetic and parasympathetic.

Blood-Borne Pulmonary Tuberculosis. — Amelung and Hecker find that the hematogenous dissemination of tuberculosis in the lungs constitutes a definite clinical entity. The physical signs are slight. Sometimes no affection of the lungs is suspected until roentgenologic examination shows an approximately uniform dissemination through the whole of the lungs. The prognosis is not necessarily fatal.

Digitalis by the Rectum.—Reinhold's experiments on cats indicate that the rectal administration of digitalis is superior to the oral, although inferior to the intramuscular and especially to the intravenous route.

Herpes Simplex Virus in Zoster.—Luger and Lauda inoculated the cornea of a rabbit with the content of a herpes zoster vesicle. The animal died from encephalitis, and in further transmissions the virus had all the characteristics of the virus of febrile herpes.

The Shellac Reaction.—Marchionini modified Urechia and Danetz' colloidal reaction of the cerebrospinal fluid with shellac.

"Action of Cholesterol on Blood and Weight."—Reicher submits data to establish his and Morgenroth's priority in the therapeutic use of cholesterol. Cobra toxolecithid anemia and pernicious anemia were favorably influenced by it. Blackwater fever responds also to this treatment.

The Cerebrospinal Fluid in Young Infants.—Mader and Saenger found a lymphocytosis in the cerebrospinal fluid of infants after encephalography. Intraspinal injection of 1 c.c. of physiologic sodium chlorid solution produced a marked polymorphonucleosis (up to several thousand per cubic millimeter), but no clinical meningeal symptoms.

Cerebrospinal Fluid in Malaria.—Floros' patient had chronic estivo-autumnal malaria. The Wassermann, the Hecht and the Sachs-Georgi reactions in his blood and cerebrospinal fluid were strongly positive; the Nonne-Apelt reaction weakly positive. All became negative after quinin treatment.

Mortality from Infectious Diseases.—Schmidt reviews the Prussian mortality statistics for the years 1911-1922. The mortality from whooping cough rivals that from diphtheria. Measles caused more deaths than scarlet fever.

4: 241-288 (Feb. 5) 1925

Herpes of the Eyes. W. P. C. Zeeman.—p. 241.
Modification of Abderhalden's Reaction. H. Sellheim.—p. 247. Cont'd.
*Photography of Filtrable Viruses. W. Pfeiler and H. Simons.—p. 253.
*Spontaneous Encephalitis in Rabbits. H. Pette.—p. 257.
*Epinephrin Reaction. E. Kylin.—p. 260.
*Amin Poisoning in Infants. E. Rominger.—p. 261.
*Lactic Acid Content of Blood. B. Mendel et al.—p. 262.
*Voluntary Movements. K. Wachholder.—p. 263.
*Avian and Mammalian Pox. W. Lowenthal.—p. 264.
*Clotting of Bloody Cerebrospinal Fluid. F. Raue.—p. 265.
"The Rickettsia Question." H. M. Woodcock.—p. 266.
Meinicke Reaction. R. Untersteiner.—p. 266.
*Water Metabolism. H. Pollitzer and E. Stolz.—p. 266.
*Leukopenia in Sepsis. R. Ehrmann and J. Preuss.—p. 267.
Sulphur Treatment. H. Handovsky.—p. 268.
Ferments in Stomach of Infants. W. Gottstein.—p. 269.
Alcoholic Reagents for Typhoid and Dysentery. F. Schiff.—p. 285.

Photography of Filtrable Viruses.—Pfeiler and Simons consider the photomicrography with ultraviolet rays an excellent research method within certain definite limits. It is of the greatest value in its application for injuring minute areas—"pricking with rays"—and for the study of objects which are just above—not below—the limits of visibility with white light. It cannot, however, give any true form of objects under 0.1 micron. Frosch's photograms of his and Dahmen's alleged virus of foot and mouth disease are several times larger than he thinks. A scientific committee investigating their research found the same changes in controls as in the alleged cultures.

Spontaneous Encephalitis in Rabbits.—Pette found in five rabbits among 120 a pleiocytosis and increased globulins in the cerebrospinal fluid. This shows again the necessity for examining repeatedly the cerebrospinal fluid of the animals before inoculating them with material from encephalitis or herpes.

Epinephrin Reaction.—Kylin injected calcium chlorid intravenously in patients who had the low vagotonic blood pressure curve after subcutaneous injections of epinephrin. The curve changed to the steep sympathicotonic type.

Amin Poisoning in an Infant.—Rominger found amins in the urine of a nursling with megacolon causing grave coprostasis. The clinical picture resembled that of alimentary intoxication, but the abdominal symptoms, especially the meteorism, were too pronounced. No amins have ever been found in the urine in true alimentary intoxication, although they appear in the stool in artificial feeding.

Lactic Acid Content of Blood.—Mendel, Engel and Goldscheider found the lactic acid concentration in the blood constant if the subject was resting. A short exertion sends it up immediately (for instance, from 16 to 71 mg. per hundred cubic centimeters), but it returns to the previous level in a few minutes. A prolonged effort does not raise the concentration so high, but it decreases slowly—for over an hour.

Voluntary Movements. — Wachholder and Altenburger determined the time of appearance of the action current in synergic muscles, and compared it with the beginning of the movement. The current preceded the movement. Consequently the action of the synergists is not produced by a reflex originating in the contraction of the main muscle.

Avian and Mammalian Pox.—Loewenthal and his collaborators transmitted pigeonpox to rabbits. After a few passages, it protected rabbits against cowpox, but it was still able to infect pigeons. The serum of these animals kills the pigeonpox virus.

Clotting of Bloody Cerebrospinal Fluid.—Raue found very little fibrinogen in the cerebrospinal fluid if the bleeding had occurred more than two days before. He attributes this to the decomposition and resorption of fibrinogen. Globulins also disappear quickly.

Water Metabolism.—Pollitzer and Stolz found a marked decrease of the basal metabolic rate after ingestion of 500 c.c. of water in parenchymatous jaundice. They consider the liver as an organ inhibiting the gas metabolism.

Leukopenia in Sepsis.—Ehrmann and Preuss observed a septic condition and jaundice in a middle aged man. He developed necroses in the mouth, his leukocytes dropped to 2,900 per cubic millimeter and 92 per cent. of them were lymphocytes. The patient recovered.

Medizinische Klinik, Berlin

21: 153-190 (Feb. 1) 1925

*Vegetative Nervous System. F. Glaser.—p. 153.
Tuberculosis of the Larynx. J. Safranek.—p. 157.
*Roentgen Treatment of Dermatitis from Freezing. J. Borak.—p. 161.
*Hypnosis and Stomach Function. R. Heilig and H. Hoff.—p. 162.
*Preventive Lavage of the Stomach in the New-Born. E. Slawik.—p. 163.
*Traumatic Sarcoma. F. Eisner.—p. 166.
*Insulin-Like Action of Vegetable Extracts. J. Sil.—p. 169.
*Epinephrin Test. E. Kylin.—p. 171.
Strontium Salts in Gout and Rheumatism. C. Kayser.—p. 173.
Heart and Vessels. E. Edens.—p. 176.

Vegetative Nervous System.—Glaser reviews the recent literature on the physiologic and pathologic significance of the vegetative nervous system. The whole metabolism—including the purins and cholesterol—seems to be regulated by it. The tuberculin reaction, anaphylactic phenomena and phenomena of scarlet fever, depend on it. An atropinized heart does not respond to stimulation of the vagus. Nevertheless, Loewi produced with the perfusing fluid of this heart the typical retardation in a second heart. It seems therefore that atropin paralyzes only this "vagal substance," but not the vagus nerve.

Roentgen Treatment of Dermatitis from Freezing.—Borak saw no amelioration of the acrocyanosis and edema conditions due to freezing when using roentgen rays. Yet the erosions, chilblains and especially the pains were most favorably influenced.

Hypnosis and Stomach Function. — Heilig and Hoff observed a lower acidity and less chymification in hypnotized persons under the suggestion of dislike of the meal than when suggesting that it is a favorite dish. The subjects were hypnotized much more readily before the long vacation than afterward, when well rested.

Preventive Lavage of the Stomach in the New-Born.—Slawik recommends a preventive lavage of the stomach in new-born infants that had presented asphyxia, and in those who might have swallowed a decomposed amniotic fluid. He believes that it prevents vomiting and perhaps wards off sepsis. One of the fifteen infants he thus treated died from pyemia. In another, necropsy revealed large amounts of fluid in the trachea and bronchi. Three had slight fever and the rest were well.

Traumatic Sarcoma.—Eisner testified as an expert in the case of a man who had died from sarcoma of the cervical spine whose symptoms had developed after direct injury. He leaves the question of causal connection open, but decided in favor of the claimants because the causal connection is probable, and it would be impossible to disprove it in this case.

Insulin-Like Action of Vegetable Extracts.—Sil observed a lowering of the blood sugar after oral administration of an extract made from germinating grain by Collip's method.

Epinephrin Test.—Kylin had the same diagnostic results with subcutaneous injections of epinephrin as with the intravenous. The former method has the advantage of being simpler and slower.

Münchener medizinische Wochenschrift, Munich

72: 165-204 (Jan. 30) 1925

*Early Stages of Pernicious Anemia. F. Weinberg.—p. 165.
Atypical Pernicious Anemia. H. Schulten.—p. 168.
*Spirochetes in a Case of Pernicious Anemia. W. Meessen.—p. 171.
*Vaccination Against Tuberculosis. E. Moro.—p. 172.
Chemotherapy of General Paralysis. B. Pfeifer.—p. 174.
Action of Colloidal Silver. W. F. v. Oettingen.—p. 177.
*Metabolism After Resection of Stomach. P. Heilmann.—p. 178.
The Fight Against Tuberculosis. Dörrenberg.—p. 183.
Meinicke's Turbidity Reaction. A. Schükri.—p. 183.
Monochorial Bivitelline Twins. O. v. Verschuer.—p. 184.
Calomel Eruption. M. Holzweissig.—p. 184.
"Duration of Pregnancy and Development of Child." A. Heyn.—p. 185.
"Microsedimentation Test." E. Kaufmann.—p. 186.
*Range of Hearing of Loud Voice and Whisper. F. Bruck.—p. 186.
A Pioneer of Antisepsis in Germany. Bäumler.—p. 188.
Prevention of Disease in Obstetrics. M. Samuel.—p. 188.
Gymnastics in Hospitals. Hammer.—p. 190.
Expert Testimony in Social Insurance. K. Lukas.—p. 191.
Survey on Dermatology. J. K. Mayr.—p. 194.

Early Stages of Pernicious Anemia.—Weinberg reiterates that gastric achylia precedes other symptoms of pernicious anemia. He also believes that it plays the most important part in the pathogenesis of the disease.

Spirochetes in a Case of Pernicious Anemia.—Meessen observed short spirochetes, thickened at the ends, in the blood and stool of four patients supposed to have pernicious anemia. He saw these spirochetes, with darkfield illumination, in every second or third field.

Vaccination Against Tuberculosis.—Moro made intracutaneous injections of a mixture of cowpox vaccine and killed tubercle bacilli in infants. He was thus able to produce allergy against tuberculin. He emphasizes that he is still far from the practical application of the method for prevention of tuberculosis. Immunity thus conferred does not last long, and the question of dosage is uncertain. Large amounts of killed tubercle bacilli lead in the organs—according to Ungermann—to the formation of tubercles which resemble those in tuberculosis.

Metabolism After Resection of Stomach.—Heilmann found normal digestion of proteins after total resection of the stomach in man. Fat was not utilized well. The acidity of the urine was not reduced after a meal but there was a lowered alkalinity of the blood.

Range of Hearing of Loud Voice and Whisper.—Bruck points out that the whispering voice is heard better than the conversational voice in disturbances of the transmission of sound. In such patients, the perception of low-pitched sounds is impaired more than that of the high-pitched whispering voice. This phenomenon was observed by Politzer and has been studied by Veis.

Wiener klinische Wochenschrift, Vienna

38: 135-162 (Jan. 29) 1925

*Ileus Serum. L. Schönbauer and E. Löffler.—p. 135.
Sex Phenomena and Otosclerosis. C. Stein.—p. 136. Conc'n. Reviewed on page 863.
*Diagnostic Tuberculin Tests. H. Czickeli and R. Haller.—p. 138.
*Provocation of Latent Syphilis. F. Mras.—p. 140.
Congenital Megacolon. J. Palugyay.—p. 143.
Suicide by Self-Strangulation. J. Lindinger.—p. 145.
*Trichophytin and Tuberculin. R. Peyrer.—p. 147.
"Deep Radium Treatment." From the Radium Station.—p. 150.
Diagnosis of Tuberculosis with Ointments. E. Löwenstein.—p. 150.
Peculiar Eruptions in Children. C. Leiner. Supplement—pp. 1-16.

Ileus Serum.—Schönbauer and Löffler attribute the death in ileus to an intoxication by protein cleavage. They found trypsin in the peritoneal exudate of dogs with experimental strangulation ileus. Resection of the strangulated loop, performed from six to twenty-four hours later, did not prevent death except when they infused 300 c.c. of blood from another dog that had been treated with trypsin injections.

Since Saxl found that diabetics have up to a thousand times more antitrypsin in the serum than normal subjects, he used successfully serum from diabetic patients. The antitryptic titer increases with ileus as well as with burns.

Diagnostic Tuberculin Tests.—Czickeli and Haller recommend Hamburger's method of specific diagnosis of tuberculosis in children. A percutaneous Moro test, with a concentrated tuberculin and after rubbing the skin with ether, is frequently positive. If not, it should be repeated a week later. Two days after this, 0.1 mg. of tuberculin may be injected subcutaneously, and eventually 1 mg. on the following day. If all these tests are negative, tuberculosis is excluded with 99 per cent. of probability.

Provocative Procedures in Syphilis.—Mras gave the arsphenamin provocative treatment to 637 patients. In only about 20 of them did the Wassermann test then become positive.

Trichophytin and Tuberculin.—Peyrer observed a marked reaction to intracutaneous injections of trichophytin in tuberculous children with superficial trichophytosis. Otherwise only patients with a deep trichophytosis react. Sorgo had found that subjects who are allergic to tuberculin react also to diphtheria and dysentery toxins even if these substances were boiled (pseudo-Schick).

Casopis lekaruv ceskych, Prague

64: 161-200 (Jan. 31) 1925

*War Experiences on "Catching Cold." K. Chodounsky.—p. 161.
Osteomyelitis of Skull After Otitis. Suma.—p. 166.
Prevention of Blindness. Z. Bruckner.—p. 175. Conc'n.
Pharmacotherapeutic Tendencies. A. Mládek.—p. 180.

War Experiences on "Catching Cold." — Chodounsky reviews the war statistics as an enormous experiment on the etiologic importance of "colds." None of the diseases attributed commonly to cold or supposed to be provoked by exposure to cold, occurred more frequently than in peace times, or among the soldiers stationed in the cities. This was observed although the exposure to frost, wind and dampness was so extreme that it was apt to increase the susceptibility to any infectious disease by lowering the general resistance. The alleged influence of a "draft" or of stepping with one bare foot on the floor cannot compare with it. Man has to and does balance the action of thermic stimuli promptly and within a wide range.

Nederlandsch Maandschrift v. Geneeskunde, Leyden

13: 1-68, 1925

Application of Diathermy to Gynecology. H. P. A. Smit.—p. 1.
Frigidity in Women: Sexual Anesthesia. A. Montagne Iz.—p. 15.
*The Ultraviruses. F. d'Herelle.—p. 33. Cont'd.

The New Science of the Ultraviruses.—D'Herelle presents evidence to prove that an ultravirus reenforcing the action of some common micro-organism is responsible for epidemics. "In marked contrast to the impossibility of reproducing an experimental contagious disease, an experimental disease induced by an ultravirus is always contagious. The action of the invisible agents is more certain than that of the visible agents. . . . Microbiology will make no real progress until we realize that it is the science of animate colloids. . . . The preface to study of microbiology is not medicine but physicochemistry. The founder of microbiology was not a physician, but Pasteur, the chemist." The filtrable virus' passage through porous filters is extremely irregular, as it may stick to the filter. Adsorption by porous filters renders them absolutely useless for the study of ultraviruses. This requires a collodion membrane; the ultraviruses pass readily through this. They seem to be intracellular parasites and require living protoplasm for their cultivation and that of their bacteriophages. Heating attenuates the virulence of the ultravirus, but he doubts whether this is more than rendering them temporarily avirulent. This has been established for the ultravirus bacteriophage. The ultravirus causes a mild affection but this favors infection by some micro-organism casually present, the *microbe de sortie,* and the result is a grave disease. In times of epidemic influenza, it seems logical to seek to become infected at the onset of the epidemic, while the cases are mild. A mild case protects against the more serious disease into which the epidemic soon develops. In 1920 he was in Cochin China. There was absolutely no chance for contagion between the animals in the remote, scattered villages, the rare and only intercourse being by boat, but in three weeks the huge region was devastated by a pasteurella epizootic, not a village escaping. The article is continued.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 429-548 (Jan. 31) 1925

*Weil's Disease. J. Goudsmit et al.—p. 430.
Elimination of Akineton. I. Snapper and A. Grünbaum.—p. 443.
*Sulphemoglobinemia. Ivens and van Vollenhoven.—p. 447.
Function of the Wolffian Body in the Fetus. Mijsberg.—p. 453.
*Pus from Antrum Invades Orbit. F. H. Stibbe.—p. 464.
Treatment of Epidemic Hiccup. M. van der Reis.—p. 466.
Destructive Hematoma in Rectus Muscle. A. G. J. Hermans.—p. 467.
Colliculitis. T. S. Klots.—p. 480.
The Katathermometer. L. Leopold.—p. 504.
Carbon Monoxid Poisoning in Garages. W. R. H. Kranenburg.—p. 509.

Weil's Disease.—Goudsmit based his diagnosis on the stormy onset of the disease, with jaundice, fever and severe pains in the muscles, especially in the calf, extreme prostration and arrhythmia, almost complete insomnia, and difficulty in swallowing. Both the direct and indirect tests for bilirubin were strongly positive. The man died the seventh day. Goudsmit emphasizes that Weil's disease never occurs in house epidemics or in numbers of cases at a time, and the mortality is higher than in spirochetosis icterohemorrhagica which occurs in epidemics, and usually in the spring. In practically all the cases of Weil's disease on record there had been an opportunity for contamination from rats in some way, and this patient had a fall into sewage-polluted stagnant water eleven days before the acute onset of the disease. Two out of seven rats caught at the same spot had leptospiras resembling those found in the patient.

Sulphemoglobinemia.—A woman in the forties with symptoms suggesting gastric ulcer, latent syphilis and insufficiency of the liver had been taking phenacetin for two or three months, when evidence of intense sulphemoglobinemia became apparent. Snapper reported in 1922 that phenacetin is liable to induce this in the presence of sulphur, the latter possibly generated in the bowel. Insufficiency of the liver favors this enterogenous cyanosis. It may occur spontaneously, but is prompter and more intense when phenacetin or an allied drug is being taken.

Secondary Ophthalmia.—A supposedly healthy man had sharp pain in the eye after a sudden attack of sneezing. Inflammation in the orbit followed; it was cured by surgical treatment of a hitherto unsuspected process in the maxillary sinus.

Acta Chirurgica Scandinavica, Stockholm

58: 1-665 (Jan. 21) 1925. Dedicated to Ali Krogius. English-French-German Edition.

Case of Antethoracic Esophagoplasty. L. Strähle.—p. 1.
*Treatment of Exophthalmic Goiter. E. Sandelin.—p. 22.
Case of Giant-Cell Tumor of Patella. R. Faltin.—p. 36.
Inguinal Hernia in Children Under Eight. O. Tawaststjerna.—p. 55.
*Quartz Lamp in Tuberculous Lymphoma. A. v. Bonsdorff.—p. 60.
Treatment of Varicose Veins. H. Bardy.—p. 74.
Lymph Follicles in Renal Mucosa. B. Runeberg.—p. 81.
Action of Mechanotherapy. D. Rancken.—p. 97.
Regressive Intussusception After Gastro-Enterostomy. Rohde.—p. 105.
Perforated Gastric and Duodenal Ulcers. G. Nyström.—p. 115.
Chronic Gastritis and Gastric and Duodenal Ulcers. T. Kalima.—p. 122.
*Renal Hemorrhage. H. Elving.—p. 142.
Prognosis in Pleural Empyema. F. Saltzman and O. Sievers.—p. 158.
Knot Formation in Intestine. A. J. Palmén.—p. 179.
Case of Ollier's Disease. L. J. Lindström.—p. 190.
*Hereditary Factor in Exostosis. F. Langenskiöld.—p. 210.
Foreign Body Cyst in Elbow Joint. V. Nevanlinna.—p. 235.
Urine Sediment in Diagnosis of Bladder Tumor. F. Stenius.—p. 240.
Pathogenesis of Bursting Rupture of Intestine. Brofeldt.—p. 256.
Acute Hematogenous Osteomyelitis in Scapula. J. Heinonen.—p. 289.
Case of Crossed Renal Dystopia. A. R. Elfving.—p. 305.
Pneumoradiography of Kidneys. C. G. Jansson.—p. 311.
Etiology of Lumbar Hernia. E. Sillman.—p. 322.
Proctopexy in Prolapse of Rectum. G. Ekehorn.—p. 397.
Surgical Affections of Trunk Arteries. P. N. Hansen.—p. 405.
Extrathoracic Esophagoplasty. J. Nicolaysen.—p. 421.
Radical Operative Treatment of Varicose Ulcers. G. Nyström.—p. 457.
*So-Called Uremia After Prostatectomy. H. Olivecrona.—p. 472.
Coagulation of Blood in Jaundice. G. Petrén.—p. 488.

Exarticulation for Sarcoma of Pelvis. V. Schaldemose.—p. 523.
Hepatitis and Operative Jaundice. C. Wessel.—p. 533.
Removal of Calculi in Lower Ureter. E. Key.—p. 551.
Ruptures from Contusion of Abdomen. A. Troell.—p. 562.
"Idiopathic" Dilatation of Esophagus. P. Bull.—p. 581.
Wire Extension. O. Borchgrevink.—p. 627.
Calcified Aneurysm of Renal Artery. G. Söderlund.—p. 649.

Treatment of Exophthalmic Goiter.—Sandelin's material comprises 268 cases (five fatal), with thyroidectomy at one sitting. As exophthalmic goiter is usually bilateral, thyroidectomy of one side is only a half measure and should not be the criterion of the results attainable by operative treatment nor of the rôle of the thyroid in the disease. He advises bilateral one-stage thyroidectomy, under ether. He does not search for and ligate the inferior artery, thus saving time and avoiding any risk to the recurrent nerve and to the parathyroids. This is particularly important in bilateral thyroidectomies made at one sitting.

Irradiation with Quartz Lamp for Tuberculous Glands.—Von Bonsdorff reports on fourteen cases irradiated with the quartz lamp and artificial sunlight, with resulting partial or complete reduction of the lymphomas, healing of fistulas and ulcers, and improvement in the general condition, including gain in weight. Basing his conclusions on these and other observations, he believes that in Finland universal artificial light baths are a good, if not a perfect, equivalent to the sun cure in sunnier lands, and a valuable aid in the treatment of tuberculosis. Through the treatment he aims to produce a strong erythema; he thinks that the duration of the treatment can thus be reduced. He considers the ultraviolet rays as most important, but the heat rays may contribute to the result.

Etiology of Renal Hemorrhage.—Elving's article was reviewed in these columns, March 7, 1925, p. 790, when published elsewhere.

Hereditary Factor in Exostoses.—Langenskiöld examined four families with a total of thirty-eight children, 50 per cent. of whom had exostoses. He found that a parent with exostosis and a healthy parent may have healthy children as well as children with exostoses, and that healthy children and brothers and sisters of persons with exostoses have only normal children. Apparent contradictions to this rule in the literature may result from incomplete examinations or factors independent of the predisposition. A study of twenty-six families in the literature revealed that 50.3 per cent. of the children had exostoses. They are caused by a single dominant hereditary factor. Possibly the severer cases of exostosis are due to a predisposition to this affection combined with another predisposition to short stature and short limbs.

So-Called Uremia After Prostatectomy.—In the literature, uremia is often assigned as the cause of death in cases fatal within forty-eight hours. Olivecrona points out that true uremia does not cause death until after several days. The clinical course of uremia is illustrated in the kidney necrosis from mercuric chlorid and in cases of removal of a congenitally single kidney. The diagnosis of uremia in the prostatectomy cases is usually based on the oliguria or anuria. The suppression of urine, however, may be due to circulatory disturbances alone. Shock from trauma, loss of blood, and possibly infection, is the probable cause of death. Blood transfusion is the rational treatment. He describes two cases of anuria after prostatectomy, with seemingly good condition for several hours and onset of severe symptoms the day following the operation. One patient died in thirty-six hours. The other recovered, apparently as the result of a blood transfusion.

Acta Pædiatrica, Upsala

4: (Feb. 4) 1925

*Hospitalism in Institutions for Children. Z. Eriksson. Supplement. —pp. 1-136.

Health and Growth of Children in Institutions.—Comparing 100 children from different children's homes in Munich with fifty children (of the working-men's class) living at home, Eriksson found an average inferior physical development in the children from the institutions. Further, their spirits were lower, their mental development was retarded, and they were noticeably late in acquiring habits of cleanliness. The resistance to measles and diphtheria, pneumonia and acute digestive disturbances was poorer, as the death rate from these affections showed. Eriksson believes the frequency of infections the chief factor in institutional injury in infants. She calls attention to the greater frequency of rickets in the older children. A considerable part of the "hospitalism" she regards as the result of the lack of individual care of the children, which is without a natural counterpart among the higher mammals. Sixty-two pages of charts and an extensive bibliography are included. The article appears in German.

Finska Läkaresällskapets Handlingar, Helsingfors

67: 1-133 (Jan.) 1925

*Malaria Treatment of General Paralysis. S. Donner.—p. 8.
*Sensory Aphasia. G. Wangel.—p. 26.
Committee Report on the Fight Against Tuberculosis in Finland.—p. 46.

Malaria Treatment of General Paralysis.—Donner says that the earlier the treatment, the greater is the probability of benefit, but older cases should not be wholly excluded. This treatment is contraindicated, however, in advanced physical weakness. Conclusions are now possible on thirty of his thirty-two cases: 30 per cent. of the patients had their earning capacity restored; 13.3 per cent. were able to do easier work; 16.7 per cent. could be cared for at home or do light work in the hospital; 30 per cent. showed no amelioration; three patients died (one from sarcoma). A definite physical improvement accompanied the mental improvement. The change appeared very gradually. He considers inoculation with malaria the best treatment available for general paralysis at present.

Case of Sensory Aphasia.—In this case, resulting from a focus of softening on the left side, with slight paraphasia, in a woman, aged 72, the patient comprehended questions and requests but the disorder was manifest in her confused speech. The simultaneous touch of two points on the tip of the tongue, 8-10 mm. apart, was perceived as one point, and a slight touch was not perceived at all. He has not previously observed this condition in aphasia, and connects the paraphasia with the sensory disturbance in the tongue, while not regarding it as the only etiologic factor.

Hospitalstidende, Copenhagen

68: 49-72 (Jan. 22) 1925

*Fasting in Treatment of Epilepsy. H. I. Schou and H. P. Stubbe Teglbjærg.—p. 49.

Fasting Treatment of Epilepsy.—Two to six days of fasting on the part of Schou and Teglbjærg's thirteen patients with genuine epilepsy, mostly severe, resulted in a complete temporary suspension of the seizures, fewer attacks of petit mal, and consistent mental improvement. In several cases the effect of the fast persisted for some time. The ammonia regulation of the acid-alkali balance in six of these patients during the fast showed a marked rise in the regulation curve with wide variations. This quickly ceased when food was given. Large amounts of ammonia were excreted during the fasting period. Charts and the data of each case are included.

68: 73-96 (Jan. 29) 1925

*The Blood Sugar in Pernicious Anemia. E. Meulengracht and P. Iversen.—p. 73.
*Degeneration of Mitochondria. J. Jessen.—p. 82.
Technic for Local Anesthesia in Ophthalmology. C. L. Andersen. —p. 89. Conc'n.

Blood Sugar in Pernicious Anemia.—Meulengracht and Iversen tested the blood sugar in seventeen patients, with a total of 260 determinations. Occasionally an increase in the fasting blood sugar was found, in the periods of exacerbation, and occasionally a prolonged and possibly also steeper blood sugar curve. These variations seem to be independent of the anemia, and due rather to the intoxication which is the basis of the anemia.

Mitochondria Degeneration.—Jessen reports the result of his investigation on the mitochondria of the kidney cells. Degeneration can be induced by injection of bacteria, diphtheria toxin, or distilled water.